

# *SERVICE MANUAL*

TN120T

*notebook*





**Notebook Computer**

**TN120T**

**Service Manual**

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## About this Manual

This manual is intended for service personnel who have completed sufficient training to undertake the maintenance and inspection of personal computers.

It is organized to allow you to look up basic information for servicing and/or upgrading components of the *TN120T* series notebook PC.

The following information is included:

Chapter 1, Introduction, provides general information about the location of system elements and their specifications.

Chapter 2, Disassembly, provides step-by-step instructions for disassembling parts and subsystems and how to upgrade elements of the system.

Appendix A, Part Lists

Appendix B, Schematic Diagrams

## **IMPORTANT SAFETY INSTRUCTIONS**

Follow basic safety precautions, including those listed below, to reduce the risk of fire, electric shock and injury to persons when using any electrical equipment:

1. Do not use this product near water, for example near a bath tub, wash bowl, kitchen sink or laundry tub, in a wet basement or near a swimming pool.
2. Avoid using a telephone (other than a cordless type) during an electrical storm. There may be a remote risk of electrical shock from lightning.
3. Do not use the telephone to report a gas leak in the vicinity of the leak.
4. Use only the power cord and batteries indicated in this manual. Do not dispose of batteries in a fire. They may explode. Check with local codes for possible special disposal instructions.
5. This product is intended to be supplied by a Listed Power Unit with an AC Input of 100 - 240V, 50 - 60Hz, DC Output of 19V, 3.42A or 18.5V, 3.5A (**65 Watts**) minimum AC/DC Adapter.

### **CAUTION**

Always disconnect all telephone lines from the wall outlet before servicing or disassembling this equipment.

**TO REDUCE THE RISK OF FIRE, USE ONLY NO. 26 AWG OR LARGER,  
TELECOMMUNICATION LINE CORD**

**This Computer's Optical Device is a Laser Class 1 Product**

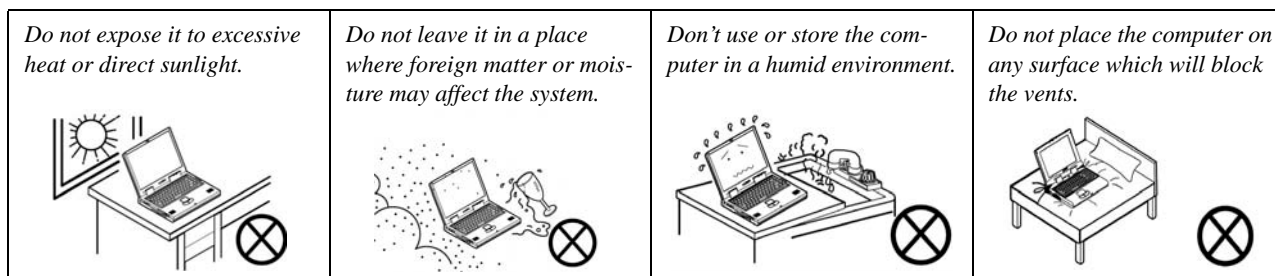
## Instructions for Care and Operation

The notebook computer is quite rugged, but it can be damaged. To prevent this, follow these suggestions:

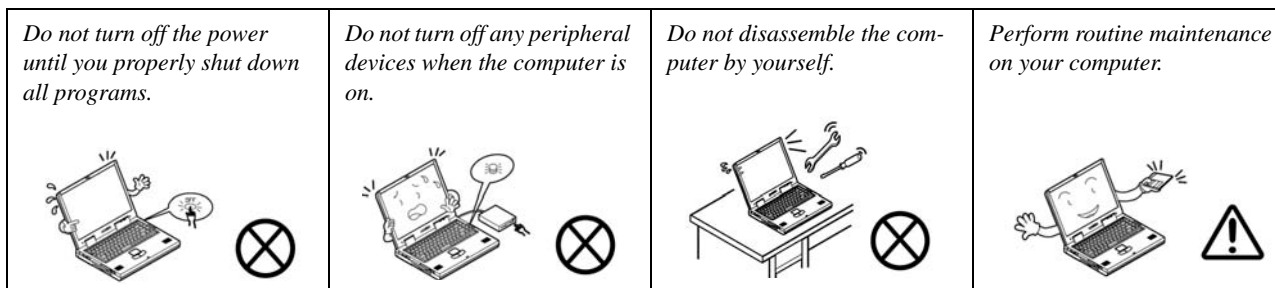
1. **Don't drop it, or expose it to shock.** If the computer falls, the case and the components could be damaged.



2. **Keep it dry, and don't overheat it.** Keep the computer and power supply away from any kind of heating element. This is an electrical appliance. If water or any other liquid gets into it, the computer could be badly damaged.

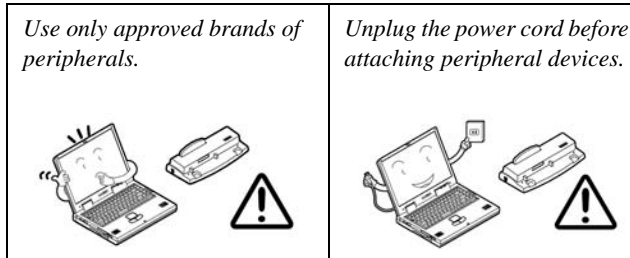


3. **Follow the proper working procedures for the computer.** Shut the computer down properly and don't forget to save your work. Remember to periodically save your data as data may be lost if the battery is depleted.



## Preface

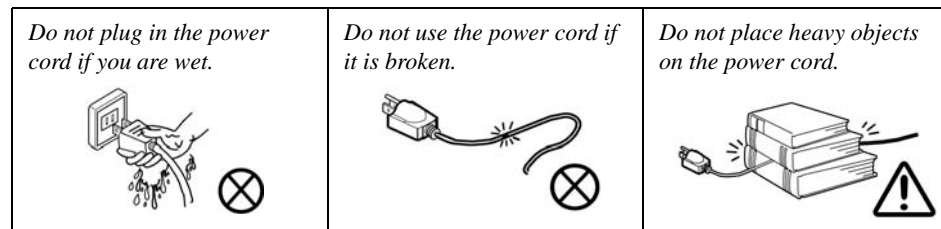
4. **Avoid interference.** Keep the computer away from high capacity transformers, electric motors, and other strong magnetic fields. These can hinder proper performance and damage your data.
5. **Take care when using peripheral devices.**



## Power Safety

The computer has specific power requirements:

- Only use a power adapter approved for use with this computer.
- Your AC adapter may be designed for international travel but it still requires a steady, uninterrupted power supply. If you are unsure of your local power specifications, consult your service representative or local power company.
- The power adapter may have either a 2-prong or a 3-prong grounded plug. The third prong is an important safety feature; do not defeat its purpose. If you do not have access to a compatible outlet, have a qualified electrician install one.
- When you want to unplug the power cord, be sure to disconnect it by the plug head, not by its wire.
- Make sure the socket and any extension cord(s) you use can support the total current load of all the connected devices.
- Before cleaning the computer, make sure it is disconnected from any external power supplies.



### Power Safety Warning

Before you undertake any upgrade procedures, make sure that you have turned off the power, and disconnected all peripherals and cables (including telephone lines). It is advisable to also remove your battery in order to prevent accidentally turning the machine on.



## Battery Precautions

- Only use batteries designed for this computer. The wrong battery type may explode, leak or damage the computer.
- Do not continue to use a battery that has been dropped, or that appears damaged (e.g. bent or twisted) in any way. Even if the computer continues to work with a damaged battery in place, it may cause circuit damage, which may possibly result in fire.
- Recharge the batteries using the notebook's system. Incorrect recharging may make the battery explode.
- Do not try to repair a battery pack. Refer any battery pack repair or replacement to your service representative or qualified service personnel.
- Keep children away from, and promptly dispose of a damaged battery. Always dispose of batteries carefully. Batteries may explode or leak if exposed to fire, or improperly handled or discarded.
- Keep the battery away from metal appliances.
- Affix tape to the battery contacts before disposing of the battery.
- Do not touch the battery contacts with your hands or metal objects.

## Battery Guidelines

The following can also apply to any backup batteries you may have.

- If you do not use the battery for an extended period, then remove the battery from the computer for storage.
- Before removing the battery for storage charge it to 60% - 70%.
- Check stored batteries at least every 3 months and charge them to 60% - 70%.




### Battery Disposal

The product that you have purchased contains a rechargeable battery. The battery is recyclable. At the end of its useful life, under various state and local laws, it may be illegal to dispose of this battery into the municipal waste stream. Check with your local solid waste officials for details in your area for recycling options or proper disposal.

### Caution

Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Discard used battery according to the manufacturer's instructions.

### Battery Level

Click the battery icon  in the taskbar to see the current battery level and charge status. A battery that drops below a level of 10% will not allow the computer to boot up. Make sure that any battery that drops below 10% is recharged within one week.

## Preface

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### Related Documents

You may also need to consult the following manual for additional information:

#### User's Manual on CD

This describes the notebook PC's features and the procedures for operating the computer and its ROM-based setup program. It also describes the installation and operation of the utility programs provided with the notebook PC.

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# Chapter 1: Introduction

## Overview

This manual covers the information you need to service or upgrade the **TN120T** series notebook computer. Information about operating the computer (e.g. getting started, and the *Setup* utility) is in the *User's Manual*. Information about drivers (e.g. VGA & audio) is also found in *User's Manual*. That manual is shipped with the computer.

Operating systems (e.g. *Windows XP*, *Windows Vista*, etc.) have their own manuals as do application software (e.g. word processing and database programs). If you have questions about those programs, you should consult those manuals.

The **TN120T** series notebook is designed to be upgradeable. See ***“Disassembly” on page 2 - 1*** for a detailed description of the upgrade procedures for each specific component. Please note the warning and safety information indicated by the “” symbol.

The balance of this chapter reviews the computer's technical specifications and features.

# System Specifications



## Latest Specification Information

The specifications listed in this Appendix are correct at the time of going to press. Certain items (particularly processor types/speeds and CD/DVD device types) may be changed, delayed or updated due to the manufacturer's release schedule. Check with your service center for details.

Feature	Specification	
<b>Processor</b>	Intel® Core™2 Duo Processor 35W - (478-pin) Micro-FC-PGA Package - Socket-P <b>T9400/ T9600</b>	45nm (45 Nanometer) Process Technology 6MB On-die L2 Cache & 1066MHz FSB <b>2.53/ 2.8 GHz</b>
	Intel® Core™2 Duo Processor 25W - (478-pin) Micro-FC-PGA Package - Socket-P <b>P9500</b>	45nm (45 Nanometer) Process Technology 6MB On-die L2 Cache & 1066MHz FSB <b>2.53 GHz</b>
	Intel® Core™2 Duo Processor 25W - (478-pin) Micro-FC-PGA Package - Socket-P <b>P8400/ P8600</b>	45nm (45 Nanometer) Process Technology 3MB On-die L2 Cache & 1066MHz FSB <b>2.26/ 2.4 GHz</b>
	Intel® Celeron® Processor 35W - (478-pin) Micro-FC-PGA Package - Socket-P <b>T1600/ T1700</b>	65nm (65 Nanometer) Process Technology 1MB On-die L2 Cache & 667MHz FSB <b>1.66/ 1.86 GHz</b>
	Intel® Celeron® Processor 31W - (478-pin) Micro-FC-PGA Package - Socket-P <b>575/ 585</b>	65nm (65 Nanometer) Process Technology 1MB On-die L2 Cache & 667MHz FSB <b>2.0/ 2.16 GHz</b>
<b>Core Logic</b>	Intel® GM45 + ICH9M Chipset	
<b>LCD</b>	12.1" WXGA (1280 * 800) TFT LCD with Touch Panel	

Feature	Specification
Memory	Two 200 Pin SO-DIMM Sockets Supporting <b>DDRII (DDR2)</b> 667/ 800 MHz 64-bit Wide <b>DDRII (DDR2)</b> Data Channel Memory Expandable up to 4GB (512/ 1024/ 2048 MB <b>DDRII</b> Modules) Supports Dual Channel <b>DDRII (DDR2)</b> SDRAM
	<b>2GB OR 4GB</b> Intel® Turbo Memory Module ( <b>Option</b> )
Video Adapter	Intel GMA X4500HD Integrated Video Shared Memory Architecture - Supports up to <b>256MB</b> of Video Memory (dynamically allocated from system memory where needed) Supports DirectX10.0 High Preference 3D/2D Graphics Accelerator
Security	Security (Kensington® Type) Lock Slot Fingerprint ID Reader Module ( <b>Factory Option</b> ) BIOS Password
BIOS	One 32Mb SPI Flash ROM Phoenix™ BIOS
Storage	One Changeable 12.7mm(h) Optical Device (CD/DVD) Type Drive (see “Optional” on page 1 - 5) Easy Changeable 2.5" 9.5 mm (h) <b>SATA</b> (Serial) HDD
Audio	High Definition Audio Compliant with Microsoft UAA (Universal Audio Architecture) Direct Sound 3D™ Compatible 2 * Built-In Speakers Built-In Microphone
Keyboard & Pointing Device	Winkey Keyboard Stylus Pen for Touch Panel Built-In Touchpad with Scrolling Function 2 Built-In Instant Keys (Menu, Rotation)
Interface	Three USB 2.0 Ports One Headphone-Out Jack One Microphone-In Jack One S/PDIF Out Jack One Internal Microphone One RJ-11 Modem Jack One RJ-45 LAN Jack One DC-in Jack One External Monitor Port One Mini-IEEE 1394a Port
Card Reader	Embedded 7-in-1 Card Reader (MS/ MS Pro/ SD/ Mini SD/ MMC/ RS MMC/ MS Duo) <b>Note:</b> MS Duo/ Mini SD/ RS MMC Cards require a PC adapter

## Introduction


Feature	Specification	
<b>Card Slots</b>	One ExpressCard/34(54) Slot One MiniCard Slot Supporting USB and PCIe Interfaces for <b>WLAN Module</b> Second MiniCard Slot Supporting USB and PCIe Interfaces for <b>Intel® Turbo Memory Module OR 3.5G Module</b>	
<b>Communication</b>  *Note: The <b>3.5G and Intel Turbo Memory Modules</b> cannot coexist. If one of these factory options is included in your purchase option, then the other is <b>unavailable</b> .	56K Plug and Play Fax Modem 10M/ 100M/ 1000M Base-TX Ethernet LAN  <b>Wireless LAN Module Options:</b> 802.11 b/g Half Mini-Card USB Wireless LAN Module ( <b>Option</b> ) Intel® WiFi Link 5300 Series (3*3 - 802.11a/g/n) PCIe Wireless LAN Half Mini-Card Module ( <b>Option</b> ) Intel® WiFi Link 5100 Series (1*2 - 802.11a/g/n) PCIe Wireless LAN Half Mini-Card Module ( <b>Option</b> )  1.3M or 2.0M Pixel USB <b>PC Camera</b> Module ( <b>Factory Option</b> )  <b>Bluetooth V2.1 + EDR</b> (Enhanced Data Rate) Module ( <b>Factory Option</b> )  *UMTS/HSPDA-based <b>3.5G Module</b> with MiniCard Interface ( <b>Factory Option</b> ) Quad-band GSM/GPRS (850 MHz, 900 MHz, 1800 MHz, 1900 MHz) UMTS WCDMA FDD (2100 MHz)	
<b>Power Management</b>	Supports ACPI 3.0 Supports Wake on LAN	Supports Resume from Modem Ring
<b>Power</b>	Full Range AC/DC Adapter AC input 100 - 240V, 50 - 60Hz, DC Output 19V, 3.42A or 18.5V, 3.5A ( <b>65 Watts</b> )	
<b>Battery</b>	4 Cell Smart Lithium-Ion Battery Pack, 14.8V/2.4AH 8 Cell Smart Lithium-Ion Battery Pack, 14.8V/4.4AH ( <b>Option</b> )	
<b>Environmental Spec</b>	Temperature Operating:       5°C ~ 35°C Non-Operating: -20°C ~ 60°C	Relative Humidity Operating:       20% ~ 80% Non-Operating: 10% ~ 90%
<b>Operating Systems Supported</b>	Windows® Vista <b>32-bit</b> (with Service Pack 1) Windows® XP (with Service Pack 3)	
<b>Dimensions &amp; Weight</b>	306mm (w) * 224mm (d) * 35 - 37.5mm (h)	2.1 kg With 4 Cell Battery and ODD



### UMTS Modes

Note that UMTS modes CAN NOT be used in North America.



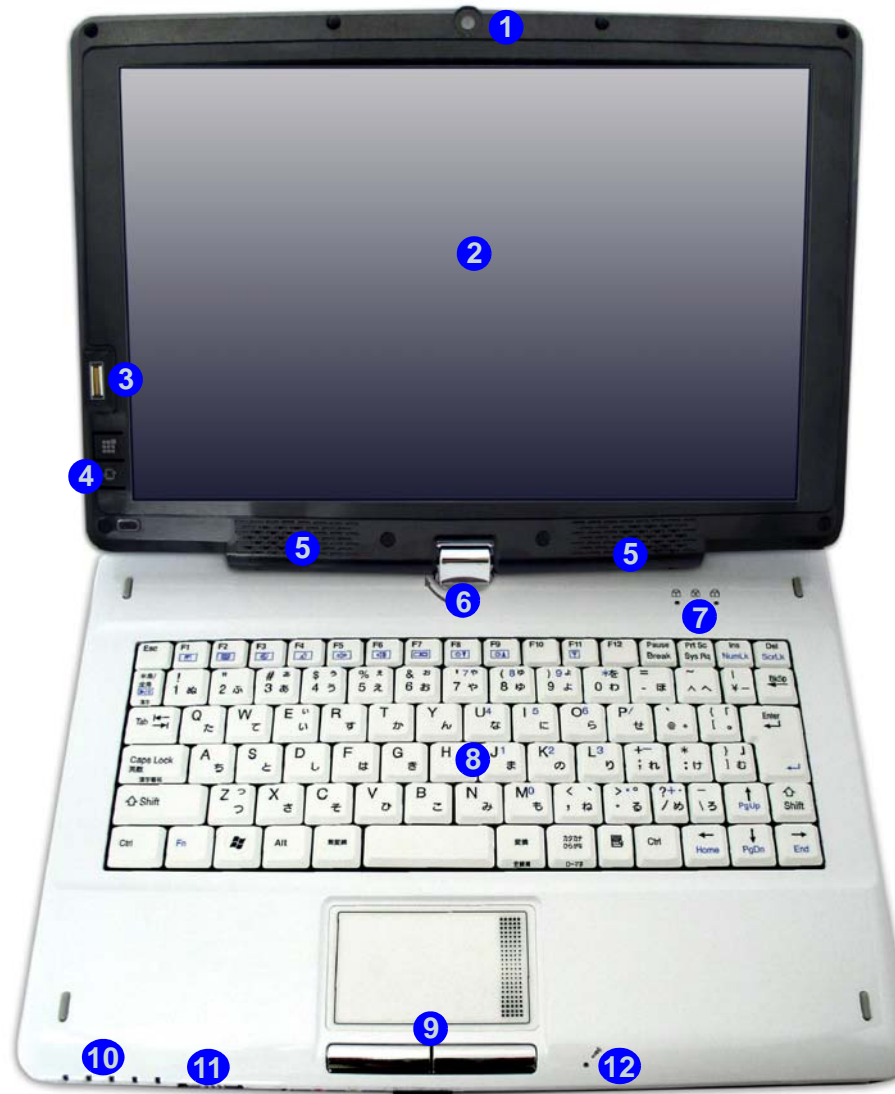
Feature	Specification
<b>Optional</b> <b>*Note:</b> The <b>3.5G</b> and <b>Intel Turbo Memory</b> Modules cannot coexist. If one of these factory options is included in your purchase option, then the other is <b>unavailable</b> .	<p><b><u>Optical Drive Module Options:</u></b>            Super Multi Drive Module            Blu-ray Combo Drive Module            Blu-ray Writer Drive Module</p> <p><b><u>Wireless-LAN Module Options:</u></b>            802.11 b/g Half Mini-Card USB Wireless LAN Module            Intel® WiFi Link 5300 Series (3*3 - 802.11a/g/n) PCie            Wireless LAN Half Mini-Card Module            Intel® WiFi Link 5100 Series (1*2 - 802.11a/g/n) PCie            Wireless LAN Half Mini-Card Module</p> <p>8 Cell Smart Lithium-Ion Battery Pack</p> <p>1.3M or 2.0M Pixel USB PC Camera Module (<b>Factory Option</b>)</p> <p>Fingerprint ID Reader Module (<b>Factory Option</b>)</p> <p>Bluetooth V2.1 + EDR (Enhanced Data Rate) Module (<b>Factory Option</b>)</p> <p><b>*2GB OR 4GB Intel® Intel Turbo Memory</b> (Robson)            NAND Flash Memory Card Module  <b>OR</b>  <b>*UMTS/HSPDA-based 3.5G Module</b> with MiniCard Interface (<b>Factory Option</b>)            Quad-band GSM/GPRS (850 MHz, 900 MHz, 1800 MHz, 1900 MHz)            UMTS WCDMA FDD (2100 MHz)</p> <div style="border: 2px solid red; border-radius: 15px; padding: 10px; text-align: center; background-color: #ff0000; color: white;">   <b>UMTS Modes</b>              Note that UMTS modes CAN NOT be used in North America.           </div>

## Introduction

*Figure 1*  
Top View with LCD  
Panel Open

1. Built-In PC Camera  
(Optional)
2. LCD
3. Fingerprint Reader Module  
(Optional)
4. Menu & Screen Rotation Buttons
5. Speakers
6. Screen Hinge
7. LED Status Indicators
8. Keyboard
9. Touchpad & Buttons
10. LED Power & Communication Indicators
11. Power Switch
12. Built-In Microphone

## External Locator - Top View with LCD Panel Open



## External Locator - Front & Rear Views



*Figure 2*  
**Front View**

1. LED Power & Communication Indicators
2. Power Switch
3. S/PDIF-Out Jack
4. Microphone-In Jack
5. Headphone-Out Jack
6. 7-in-1 Card Reader
7. Stylus Pen Holder



*Figure 3*  
**Rear View**

1. Security Lock Slot
2. 2 \* USB 2.0 Ports
3. DC-In Jack
4. Battery

## Introduction

### External Locator - Right & Left Side Views

*Figure 4*  
**Right Side View**

1. Stylus Pen Holder
2. Optical Device (for DVD Device)
3. Emergency Eject Hole
4. 1 \* USB 2.0 Port
5. RJ-11 Phone Jack
6. RJ-45 LAN Jack

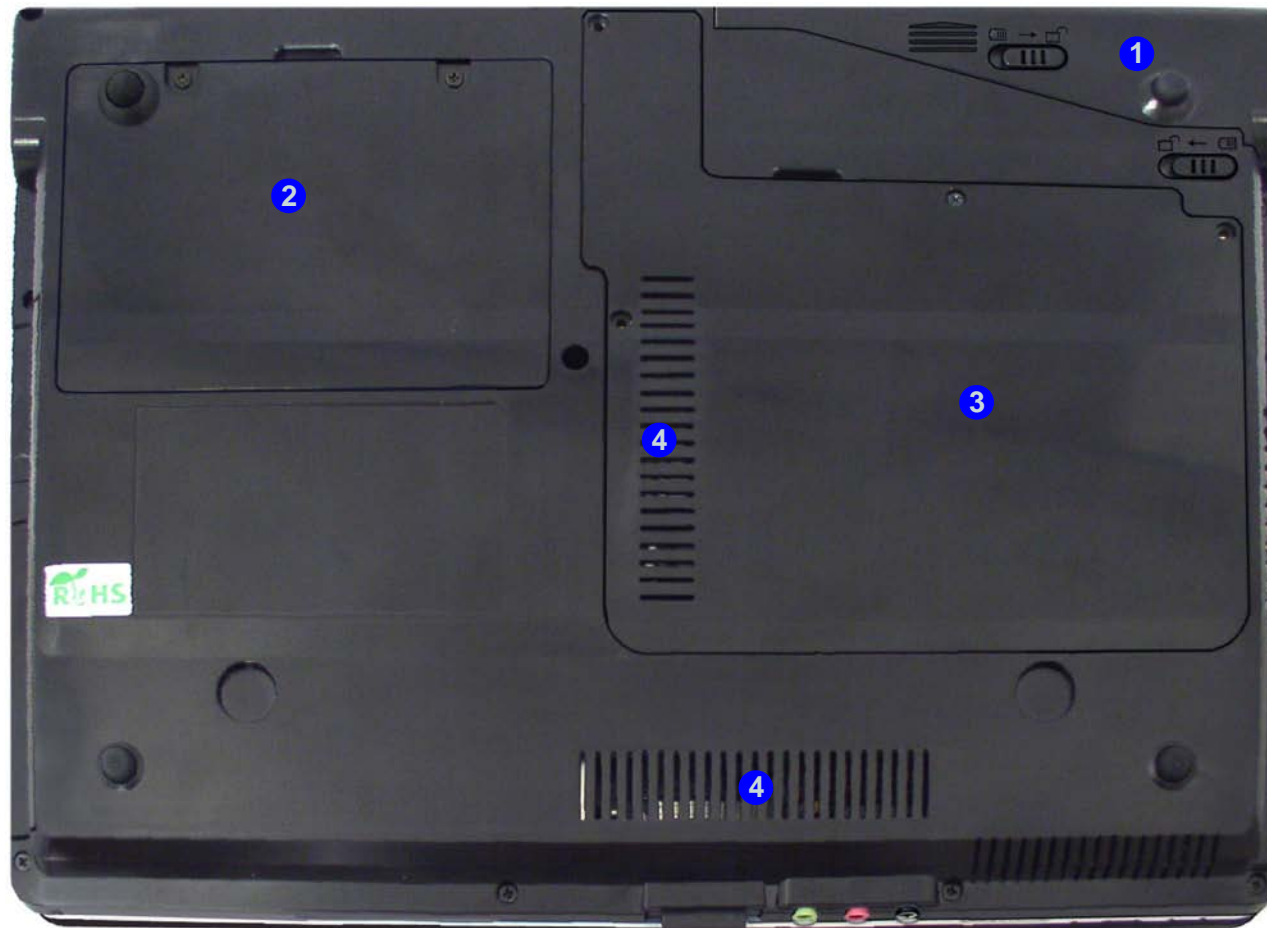


*Figure 5*  
**Left Side View**

1. External Monitor Port
2. Mini-IEEE 1394 Port (supports **SELF Powered** IEEE 1394 devices only)
3. Vent
4. ExpressCard/ 54(34) Slot



## External Locator - Bottom View



*Figure 6*  
**Bottom View**

1. Battery
2. Hard Disk Bay Cover (3.5G Module Location)
3. RAM & CPU Bay Cover
4. Vent



### Overheating

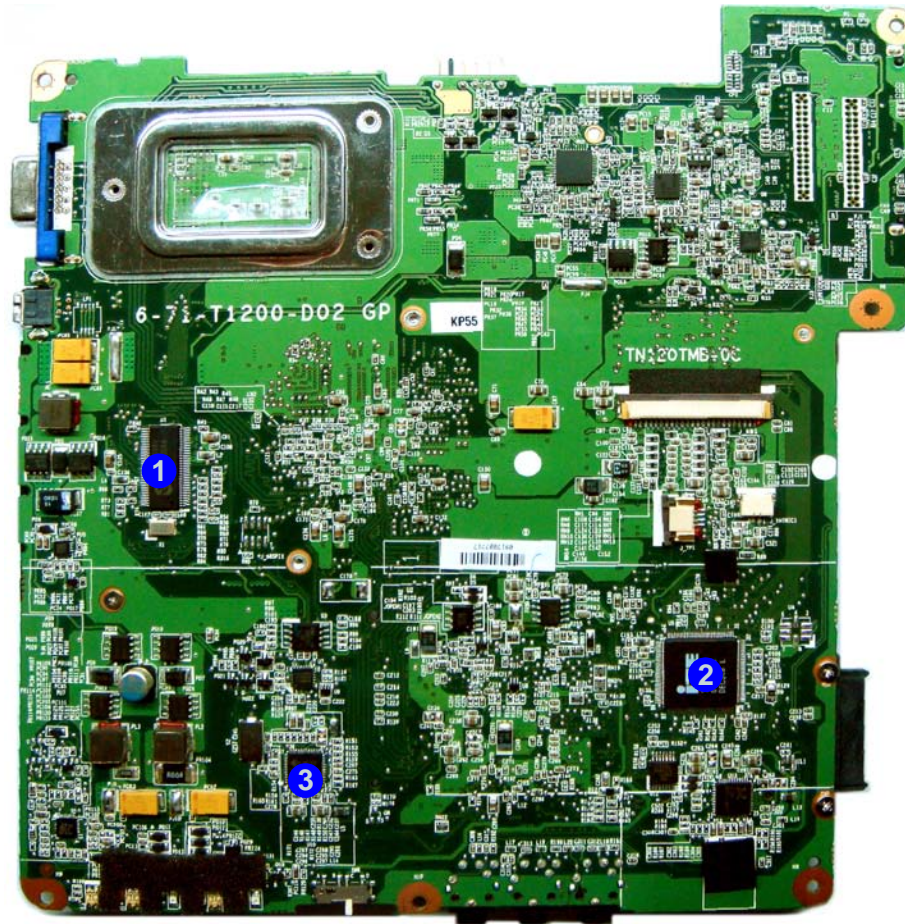
To prevent your computer from overheating make sure nothing blocks the vent/fan intakes while the computer is in use.



*Figure 7*  
**Mainboard Top**  
**Key Parts**

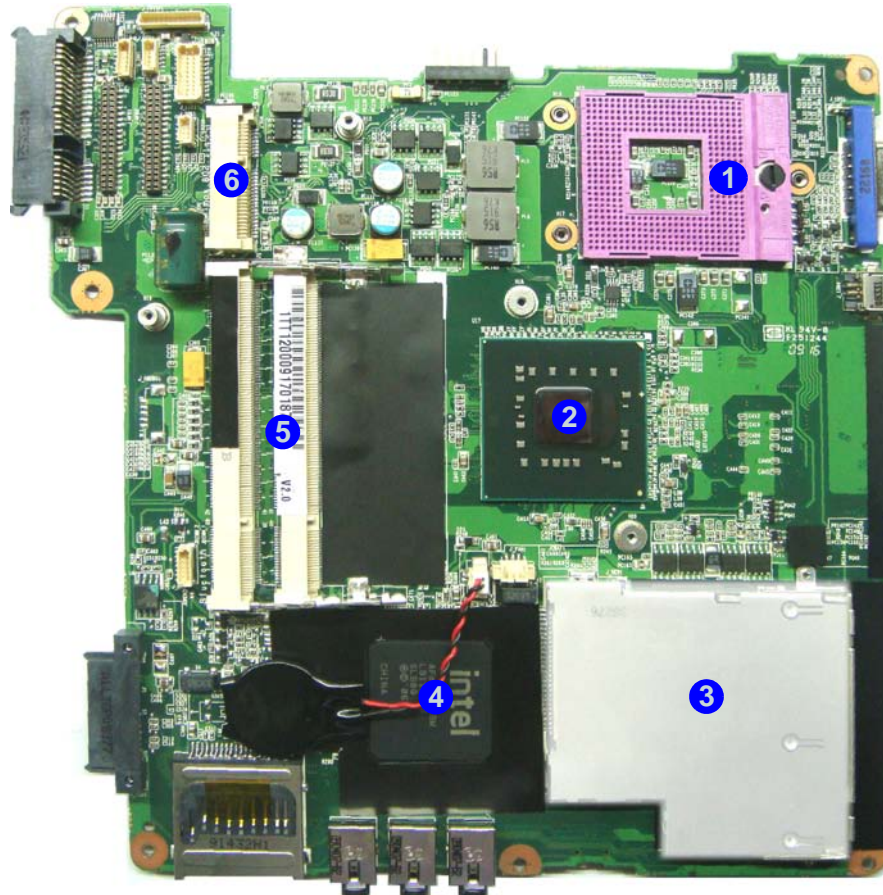
1. Clock Buffer
2. ITE 8512E
3. Card Reader  
Controller ENE  
MR510

## Mainboard Overview - Top (Key Parts)



## Mainboard Overview - Bottom (Key Parts)

*Figure 8*  
**Mainboard Bottom Key Parts**



1. CPU Socket (no CPU installed)
2. Northbridge-intel GM965
3. ExpressCard Assembly
4. Southbridge-ICH8-M
5. Memory Slots DDRII So-DIMM
6. WLAN Mini Card Slot

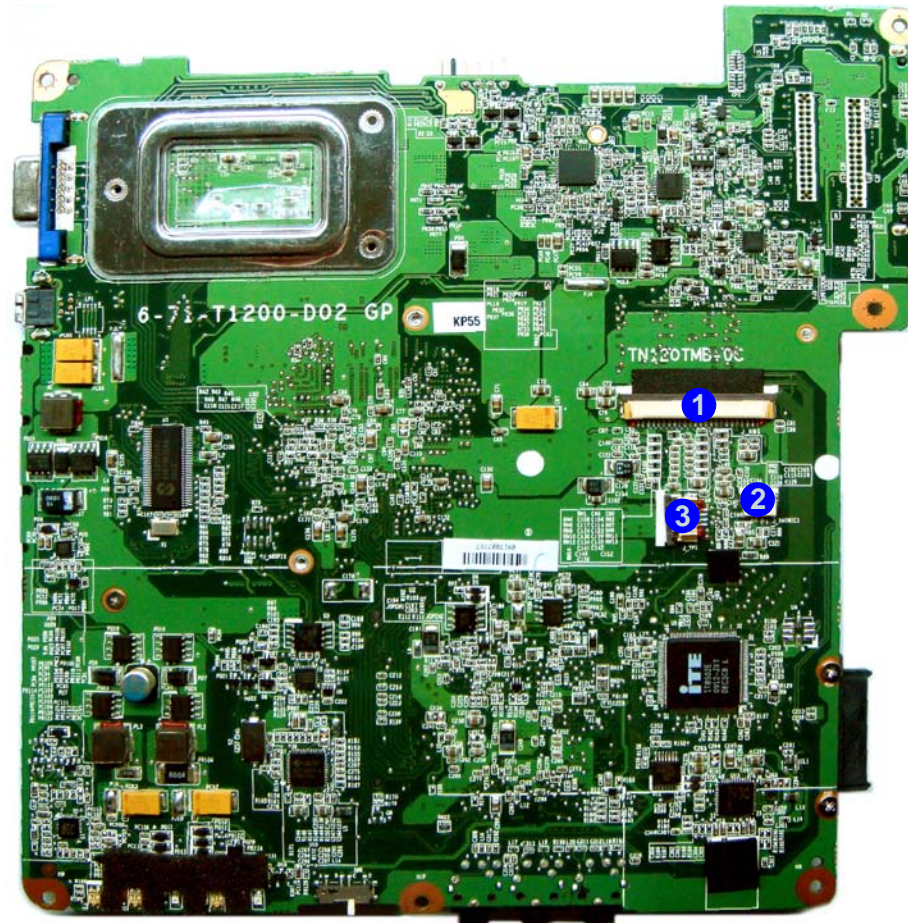


## Introduction

*Figure 9*  
**Mainboard Top  
Connectors**

1. Keyboard Cable Connector
2. Internal Microphone Cable Connector
3. Touch Pad Cable Connector  
Connector Battery Connector

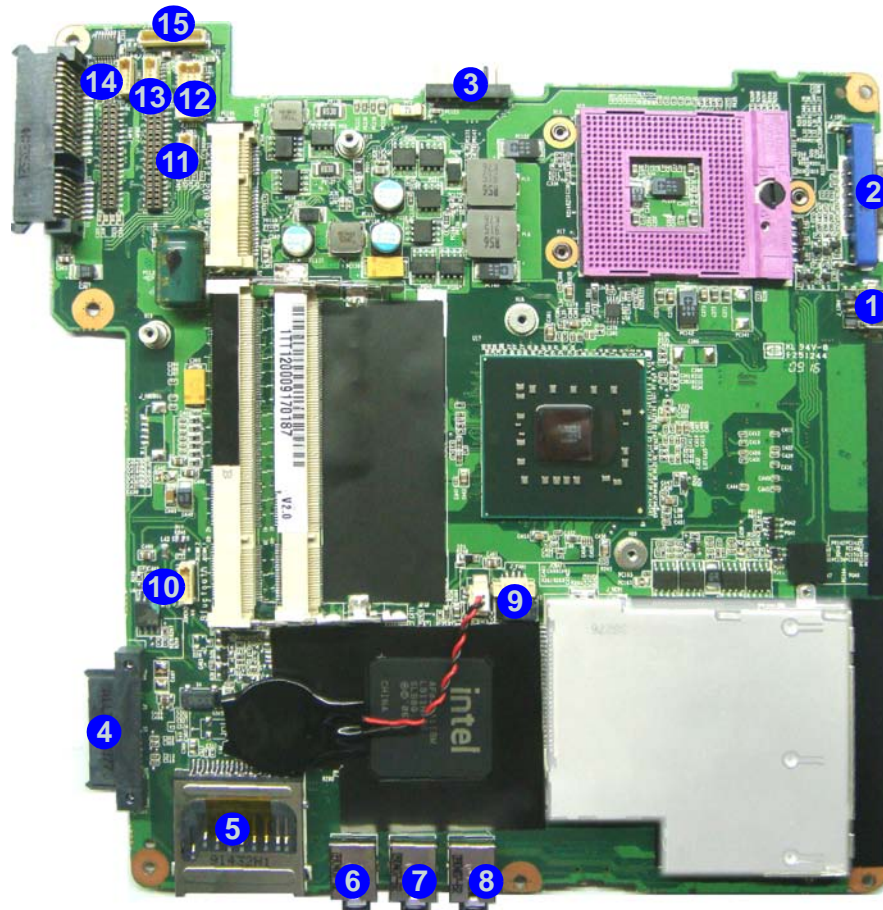
## Mainboard Overview - Top (Connectors)





*Figure 10*  
**Mainboard Bottom  
Connectors**

1. Mini-IEEE 1394 Port
2. External Monitor Port
3. Battery Connector
4. Optical Device Drive Connector
5. 7-in-1 Card Reader
6. Headphone-Out Jack
7. Microphone-In Jack
8. S/PDIF-Out Jack
9. Fan Cable Connector
10. Bluetooth Cable Connector
11. Speaker Cable Connector
12. LCD Cable Connector
13. Inverter Cable Connector
14. CCD Cable Connector
15. Fingerprint Cable Connector



## Mainboard Overview - Bottom (Connectors)




# Chapter 2: Disassembly



## Overview

This chapter provides step-by-step instructions for disassembling the *TN120T* series notebook's parts and subsystems. When it comes to reassembly, reverse the procedures (unless otherwise indicated).

We suggest you completely review any procedure before you take the computer apart.

Procedures such as upgrading/replacing the RAM, CD device and hard disk are included in the User's Manual but are repeated here for your convenience.

To make the disassembly process easier each section may have a box in the page margin. Information contained under the figure # will give a synopsis of the sequence of procedures involved in the disassembly procedure. A box with a  lists the relevant parts you will have after the disassembly process is complete. **Note:** The parts listed will be for the disassembly procedure listed ONLY, and not any previous disassembly step(s) required. Refer to the part list for the previous disassembly procedure. The amount of screws you should be left with will be listed here also.

A box with a  will also provide any possible helpful information. A box with a  contains warnings.

An example of these types of boxes are shown in the sidebar.

  
Information  
Warning

## Disassembly

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**NOTE:** All disassembly procedures assume that the system is turned **OFF**, and disconnected from any power supply (the battery is removed too).

### Maintenance Tools

The following tools are recommended when working on the notebook PC:

- M3 Philips-head screwdriver
- M2.5 Philips-head screwdriver (magnetized)
- M2 Philips-head screwdriver
- Small flat-head screwdriver
- Pair of needle-nose pliers
- Anti-static wrist-strap

### Connections

Connections within the computer are one of four types:

Locking collar sockets for ribbon connectors	To release these connectors, use a small flat-head screwdriver to gently pry the locking collar away from its base. When replacing the connection, make sure the connector is oriented in the same way. The pin1 side is usually not indicated.
Pressure sockets for multi-wire connectors	To release this connector type, grasp it at its head and gently rock it from side to side as you pull it out. Do not pull on the wires themselves. When replacing the connection, do not try to force it. The socket only fits one way.
Pressure sockets for ribbon connectors	To release these connectors, use a small pair of needle-nose pliers to gently lift the connector away from its socket. When replacing the connection, make sure the connector is oriented in the same way. The pin1 side is usually not indicated.
Board-to-board or multi-pin sockets	To separate the boards, gently rock them from side to side as you pull them apart. If the connection is very tight, use a small flat-head screwdriver - use just enough force to start.

## Maintenance Precautions

The following precautions are a reminder. To avoid personal injury or damage to the computer while performing a removal and/or replacement job, take the following precautions:

1. **Don't drop it.** Perform your repairs and/or upgrades on a stable surface. If the computer falls, the case and other components could be damaged.
2. **Don't overheat it.** Note the proximity of any heating elements. Keep the computer out of direct sunlight.
3. **Avoid interference.** Note the proximity of any high capacity transformers, electric motors, and other strong magnetic fields. These can hinder proper performance and damage components and/or data. You should also monitor the position of magnetized tools (i.e. screwdrivers).
4. **Keep it dry.** This is an electrical appliance. If water or any other liquid gets into it, the computer could be badly damaged.
5. **Be careful with power.** Avoid accidental shocks, discharges or explosions.
  - Before removing or servicing any part from the computer, turn the computer off and detach any power supplies.
  - When you want to unplug the power cord or any cable/wire, be sure to disconnect it by the plug head. Do not pull on the wire.
6. **Peripherals** – Turn off and detach any peripherals.
7. **Beware of static discharge.** ICs, such as the CPU and main support chips, are vulnerable to static electricity. Before handling any part in the computer, discharge any static electricity inside the computer. When handling a printed circuit board, do not use gloves or other materials which allow static electricity buildup. We suggest that you use an anti-static wrist strap instead.
8. **Beware of corrosion.** As you perform your job, avoid touching any connector leads. Even the cleanest hands produce oils which can attract corrosive elements.
9. **Keep your work environment clean.** Tobacco smoke, dust or other air-born particulate matter is often attracted to charged surfaces, reducing performance.
10. **Keep track of the components.** When removing or replacing any part, be careful not to leave small parts, such as screws, loose inside the computer.

## Cleaning

Do not apply cleaner directly to the computer, use a soft clean cloth.

Do not use volatile (petroleum distillates) or abrasive cleaners on any part of the computer.



### Power Safety Warning

Before you undertake any upgrade procedures, make sure that you have turned off the power, and disconnected all peripherals and cables (including telephone lines). It is advisable to also remove your battery in order to prevent accidentally turning the machine on.

## Disassembly Steps

The following table lists the disassembly steps, and on which page to find the related information. **PLEASE PERFORM THE DISASSEMBLY STEPS IN THE ORDER INDICATED.**

### To remove the Battery:

1. Remove the battery *page 2 - 5*

### To remove the HDD:

1. Remove the battery *page 2 - 5*
2. Remove the HDD *page 2 - 6*

### To remove the Modem :

1. Remove the battery *page 2 - 5*
2. Remove the HDD *page 2 - 6*
3. Remove the modem *page 2 - 8*

### To remove the 3G :

1. Remove the battery *page 2 - 5*
2. Remove the HDD *page 2 - 6*
3. Remove the 3G *page 2 - 9*

### To remove the System Memory:

1. Remove the battery *page 2 - 5*
2. Remove the system memory *page 2 - 10*

### To remove the Processor:

1. Remove the battery *page 2 - 5*
2. Remove the processor *page 2 - 12*

### To remove the Wireless LAN Module:

1. Remove the battery *page 2 - 5*
2. Remove the Wireless LAN *page 2 - 15*

### To remove the Bluetooth:

1. Remove the battery *page 2 - 5*
2. Remove the bluetooth *page 2 - 16*

### To remove the Optical Device:

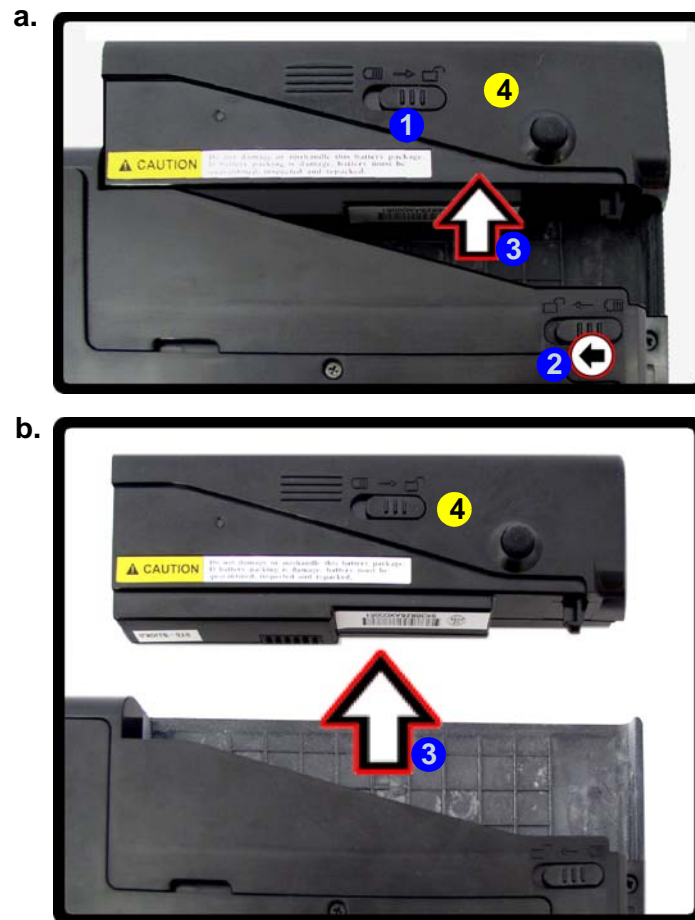
1. Remove the battery *page 2 - 5*
2. Remove the Optical device *page 2 - 17*

### To remove the Keyboard:

1. Remove the battery *page 2 - 5*
2. Remove the keyboard *page 2 - 18*

## Removing the Battery

1. Turn the computer **off**, and turn it over.
2. Slide the latch ① in the direction of the arrow.
3. Slide the latch ② in the direction of the arrow, and hold it in place.
4. Slide the battery ④ in the direction of the arrow ③.



*Figure 1*  
**Battery Removal**

- a. Slide the 2 latches and hold latch ② in place.
- b. Slide the battery in the direction of the arrow.



4. Battery

## Disassembly

*Figure 2*  
**HDD Assembly  
Removal**

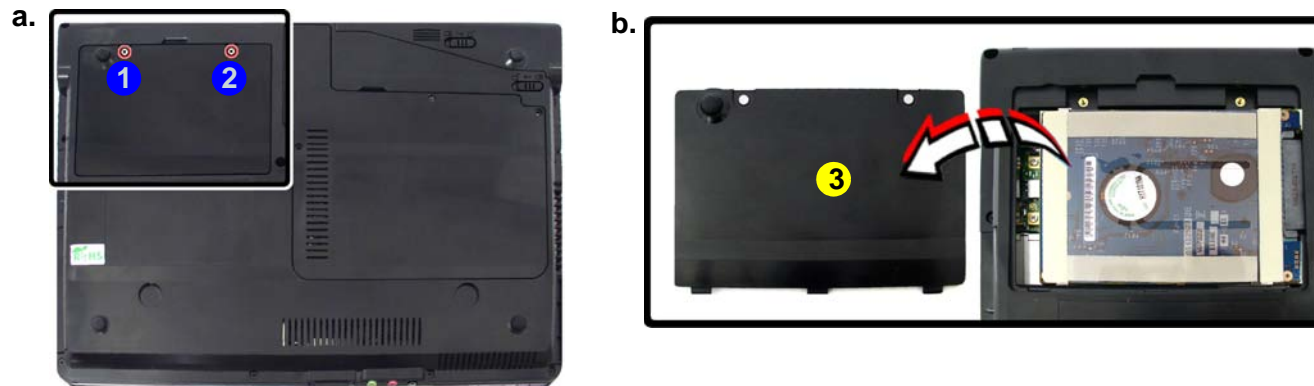
- a. Locate the HDD bay cover and remove the screws.
- b. Remove the bay cover.

## Removing the Hard Disk Drive

The hard disk drive can be taken out to accommodate other 2.5" serial (SATA) hard disk drives with a height of 9.5mm (h). Follow your operating system's installation instructions, and install all necessary drivers and utilities (as outlined in **Chapter 4 of the User's Manual**) when setting up a new hard disk.

### Hard Disk Upgrade Process:

1. Turn **off** the computer, and remove the battery ([page 2 - 5](#)).
2. Locate the hard disk bay cover and remove the screws (1 - 2).
3. Remove the bay cover (3).



#### 3. HDD Bay Cover

- 2 Screws



#### HDD System Warning

New HDD's are blank. Before you begin make sure:

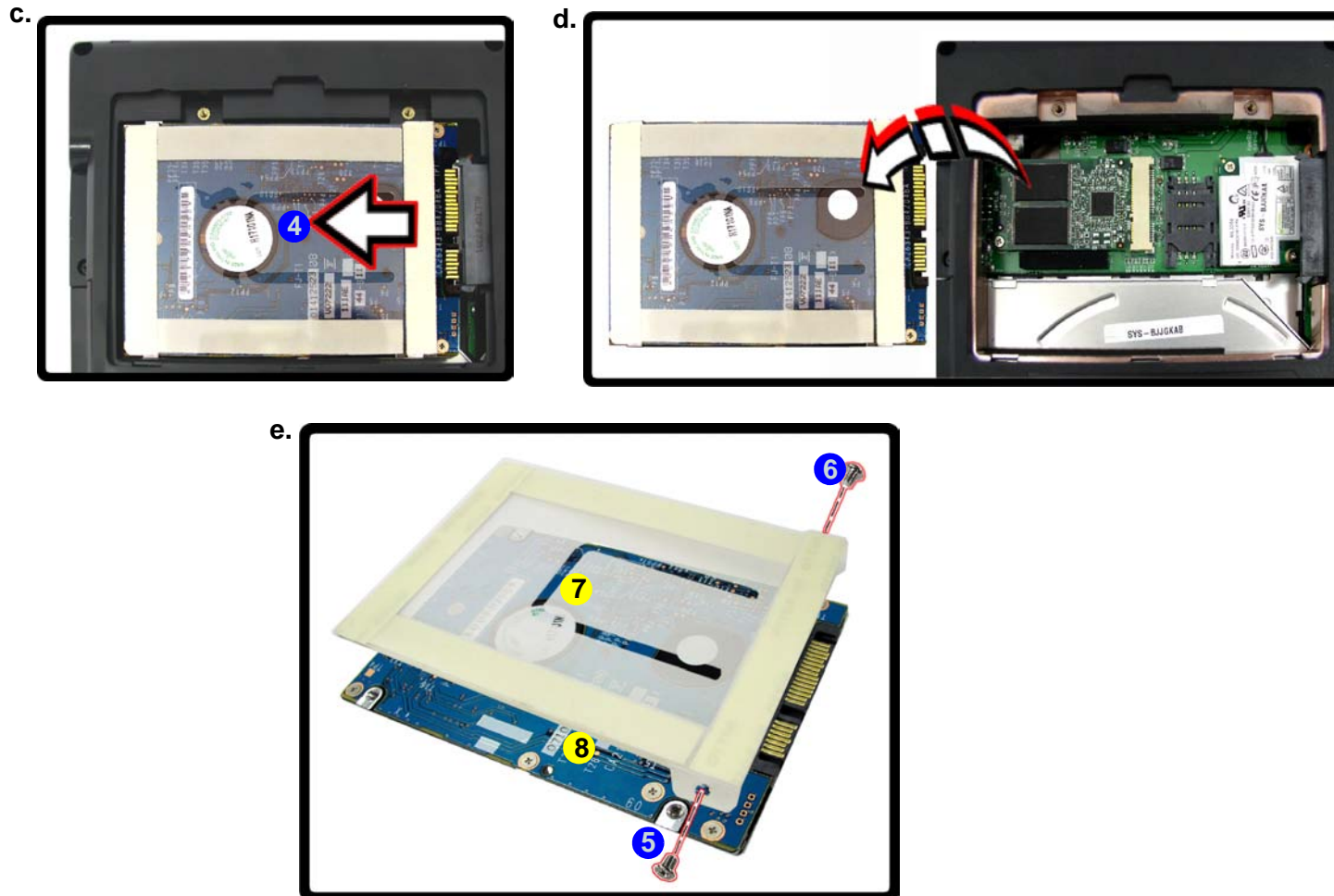
You have backed up any data you want to keep from your old HDD.

You have all the CD-ROMs and FDDs required to install your operating system and programs.

If you have access to the internet, download the latest application and hardware driver updates for the operating system you plan to install. Copy these to a removable medium.



4. Carefully grip the mylar tab **4** and slide the hard disk in the direction of arrow
5. Lift the hard disk up (**Figure d**) in the direction of arrow.
6. Remove the screws **5** - **6** and separate the mylar cover **7** from the hard disk **8**.
7. Reverse the process to install any new hard disk.



- c. Slide the HDD in the direction of the arrow.
- d. Lift the HDD out of the bay.
- e. Remove the screws and separate the mylar cover from the HDD.

- 7. Mylar Cover
- 8. HDD
- 2 Screws

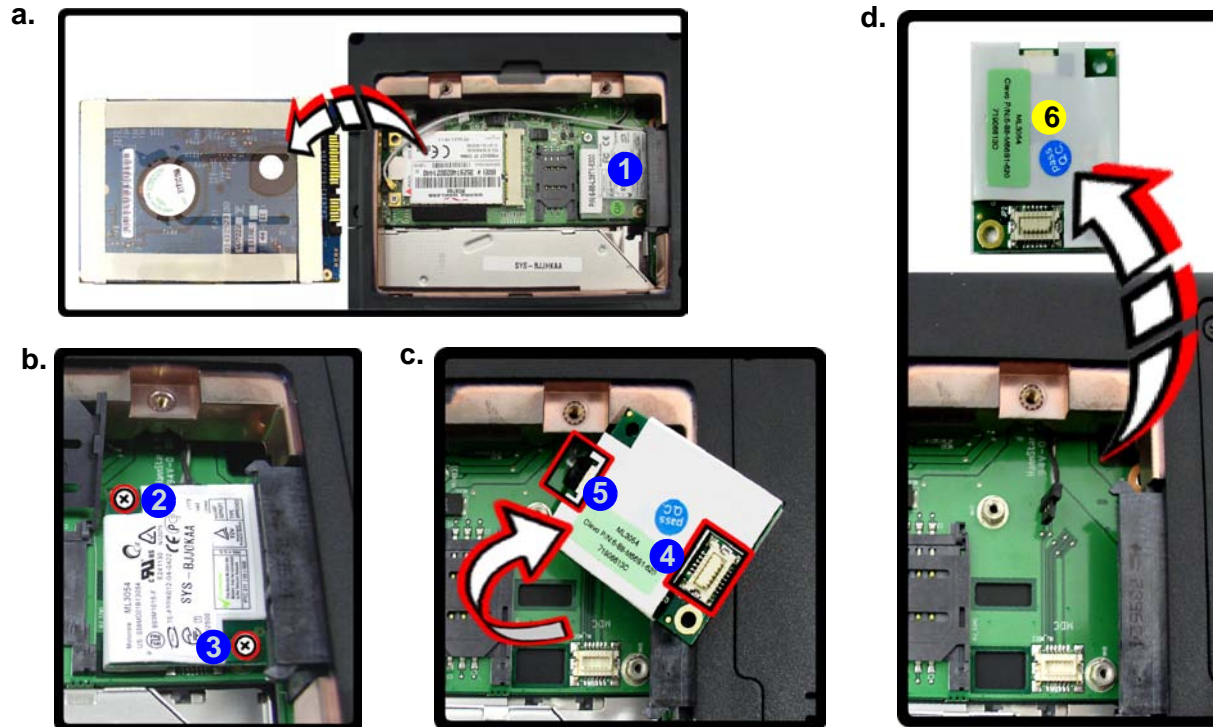
## Disassembly

*Figure 4*  
**Modem Removal**

- a. Remove the hard disk
- b. Remove the screws.
- c. Lift the modem up off the socket and disconnect the connector from the modem.
- d. Remove the modem.

## Removing the Modem Module

1. Turn off the computer, remove the battery ([page 2 - 5](#)) and the hard disk ([page 2 - 6](#)).
2. The modem will be visible at point ① under the hard disk.
3. Remove screws ② - ③.
4. Lift the modem up off the socket ④ and disconnect the connector ⑤ from the modem.
5. Lift the modem ⑥ up and off the computer.



6. Modem

- 2 Screws

## Removing the 3G Module

1. Turn off the computer, remove the battery ([page 2 - 5](#)) and the hard disk ([page 2 - 6](#)).
2. The 3G module will be visible at point **1** under the hard disk.
3. Carefully disconnect cable **2**, then remove the screw **3** from the module socket.
4. The 3G module **4** will pop-up.
5. Lift the 3G module ([Figure d](#)) up and off the computer.

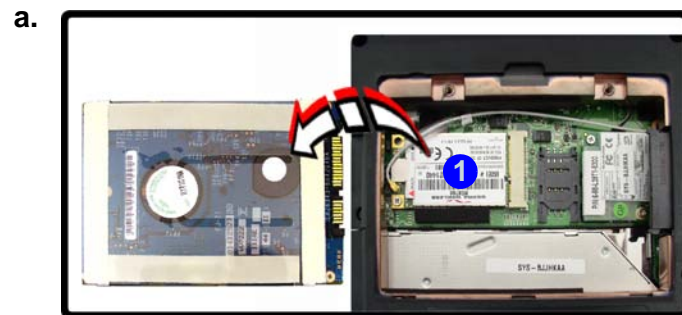


Figure 5  
3G Removal

- a. Remove the hard disk
- b. Disconnect the cable and remove the screw.
- c. The 3G module will pop up.
- d. Remove the 3G module.

Note: Make sure you reconnect the antenna cable to the “Main” socket ([Figure b](#)).



4. 3G Module

- 2 Screws

## Disassembly

*Figure 6*  
**RAM Module Removal**

- Remove the screws.
- Disconnect the fan cable and the cover.
- Locate the RAM module.



### Contact Warning

Be careful not to touch the metal pins on the module's connecting edge. Even the cleanest hands have oils which can attract particles, and degrade the module's performance.



### 6. CPU/RAM Bay Cover

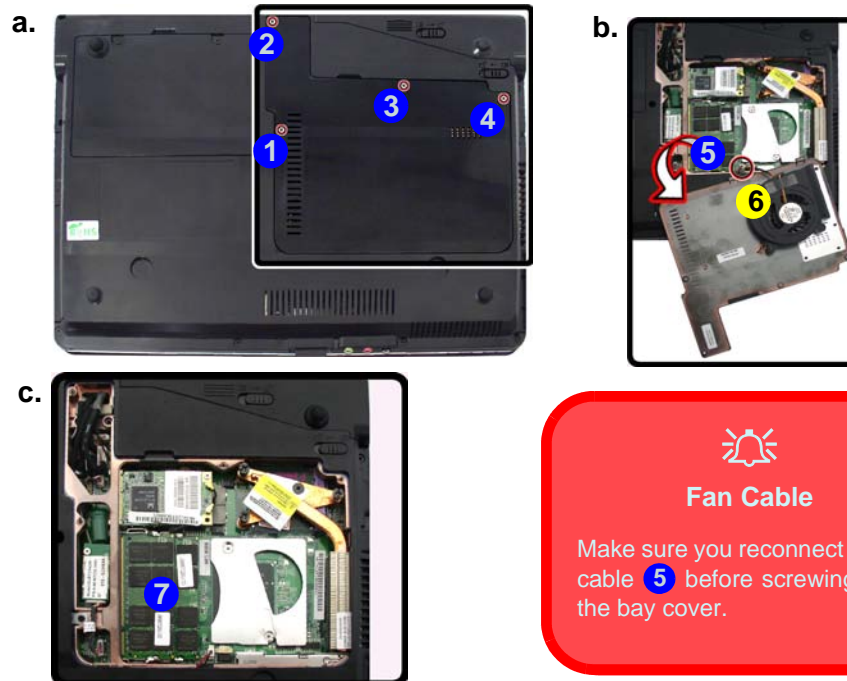
- 4 Screws

## Removing the System Memory (RAM)

The computer has two memory sockets for 200 pin Small Outline Dual In-line Memory Modules (SO-DIMM) supporting **DDRII** 667/800MHz. The main memory can be expanded up to 4GB. The SO-DIMM modules supported are 256MB, 512MB and 1024MB **DDRII** Modules. The total memory size is automatically detected by the POST routine once you turn on your computer.

### Memory Upgrade Process

- Turn **off** the computer, remove the battery ([page 2 - 5](#)).
- Locate the CPU/RAM bay cover, and remove screws **1** - **4**.
- Carefully (a fan and cable are attached to the under side of the cover) lift up the bay cover.
- Carefully disconnect the fan cable **5**.
- Remove the bay cover **6**.
- The RAM will be visible at point **7** on the mainboard.



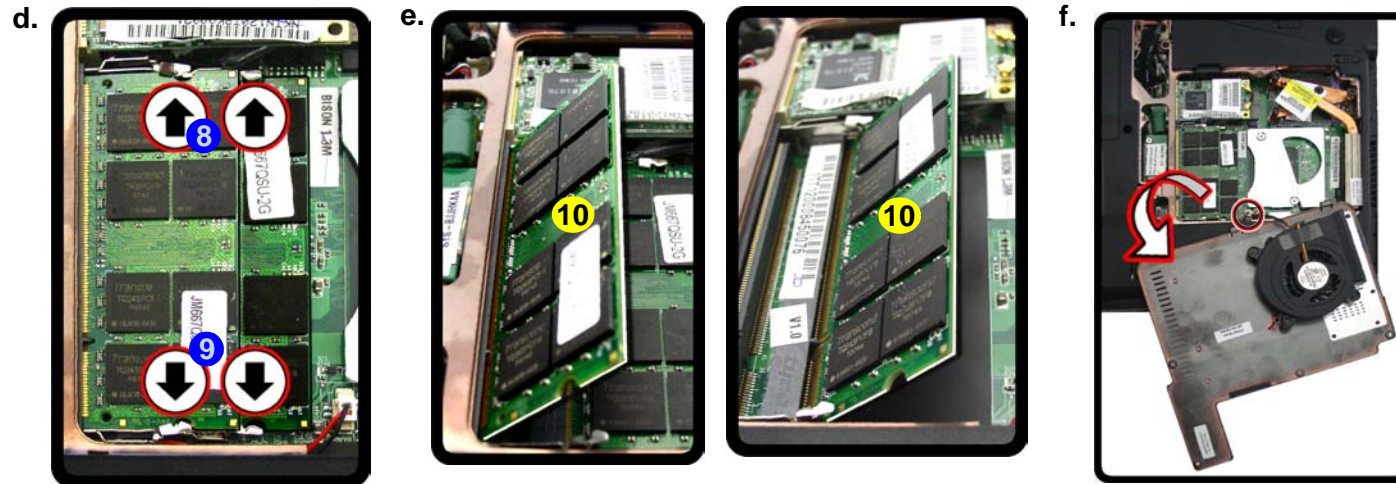
### Fan Cable

Make sure you reconnect the fan cable **5** before screwing down the bay cover.



*Figure 7*  
**Memory Removal Sequence**

- d. Push the release latch(es).
- e. Remove the module(s).
- f. Make sure you reconnect the fan cable.



- 9. Push the latches to release the second module if necessary.
- 10. Insert a new module holding it at about a 30° angle and fit the connectors firmly into the memory slot.
- 11. The module will only fit one way as defined by its pin alignment. Make sure the module is seated as far into the slot as it will go. **DO NOT FORCE IT**; it should fit without much pressure.
- 12. Press the module down towards the mainboard until the slot levers click into place to secure the module.
- 13. Replace the bay cover and the screws (**make sure you reconnect the fan cable before screwing down the bay cover - Figure f**).
- 14. Restart the computer to allow the BIOS to register the new memory configuration as it starts up.

### Single Memory Module Installation

If your computer has a single memory module, then insert the module into the **Channel 0 (JDIMM1)** socket. In this case this is the **lower memory socket** (the socket closest to the mainboard).

10 RAM Module(s)

## Disassembly

Figure 8  
Processor Removal

- Remove the cover and locate the heat sink.
- Remove the 3 screws in the order indicated.



### CPU Heat Sink Screws

In order to prevent damage to the CPU it is very important that the heat sink screws are loosened in the correct order.

There are numbers printed on the heat sink. **The order in which the screws should be loosened, depends on whether you are removing the CPU, or installing the CPU.**

When **REMOVING** the heat sink unit **loosen the screws in the order 3, 2, 1** (as printed on the heat sink). **Figure b** indicates the correct order to loosen the screws when removing the heat sink unit.



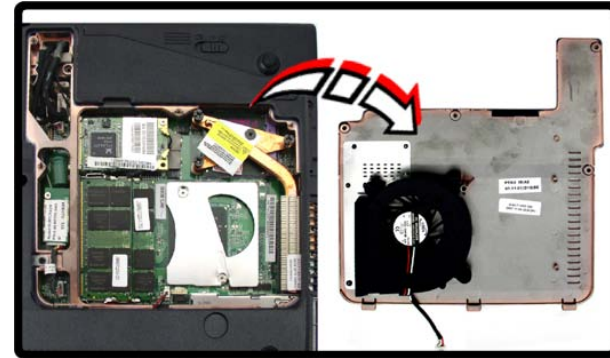
4. Heat Sink

- 3 Screws

## Removing the Processor

- Turn **off** the computer, and remove the battery ([page 2 - 5](#)) and the CPU/RAM bay cover ([page 2 - 10](#)).
- Loosen the heat sink screws **3 - 1** (IN THE ORDER 3, 2, 1 AS INDICATED ON THE HEAT SINK - See below).

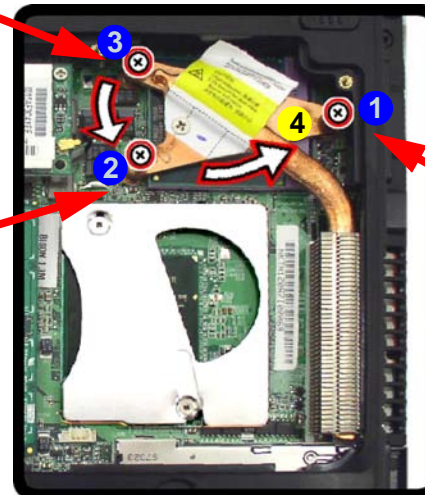
a.




b. HEAT SINK REMOVAL

Loosen screw **3** FIRST.

Loosen screw **2** SECOND.

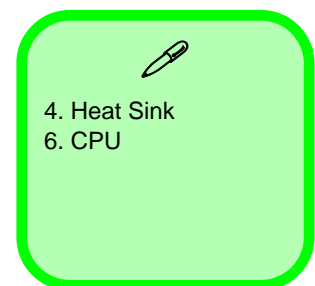
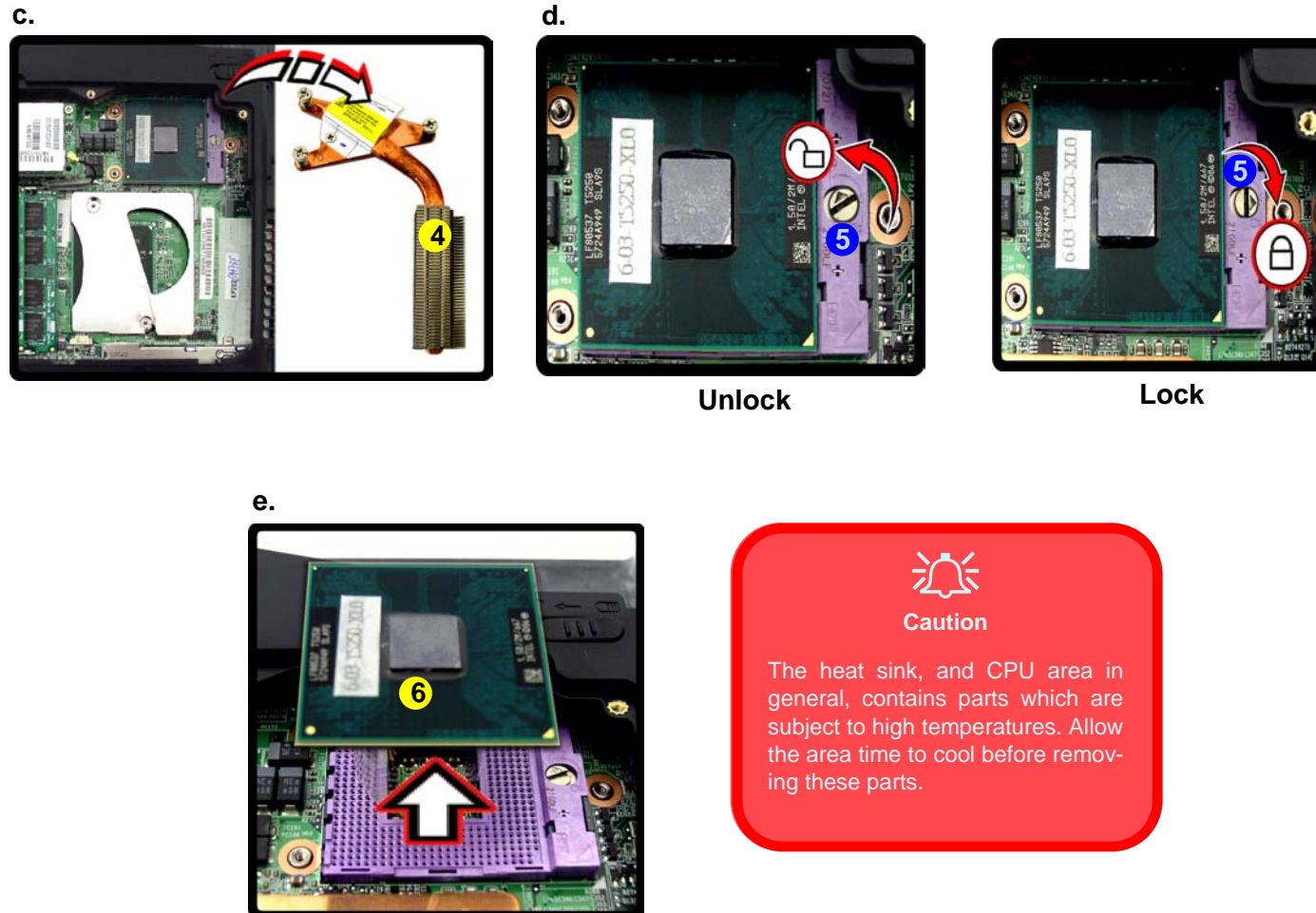


Loosen screw **1** THIRD.

3. When the screws are loosened sufficiently, carefully lift up the heat sink **4** (**Figure c**) off the computer.
4. Turn the release latch **5** towards the unlock symbol , to release the CPU (**Figure d**).
5. Carefully (it may be hot) lift the CPU **6** up out of the socket (**Figure e**).
6. When re-inserting the CPU, pay careful attention to the pin alignment, it will fit only one way (DO NOT FORCE IT!).

*Figure 9*  
**Processor Removal Sequence**

- c. Remove the heat sink.
- d. Turn the release latch to unlock the CPU.
- e. Lift the CPU out of the socket.



## Disassembly

*Figure 10*  
**Processor Removal  
Sequence**

f. Tighten the 3 screws in the order indicated.

7. Tighten the screws ① - ③ (IN THE ORDER 1, 2, 3 AS INDICATED ON THE HEAT SINK - See below).
8. Replace the CPU/RAM bay cover and screws.

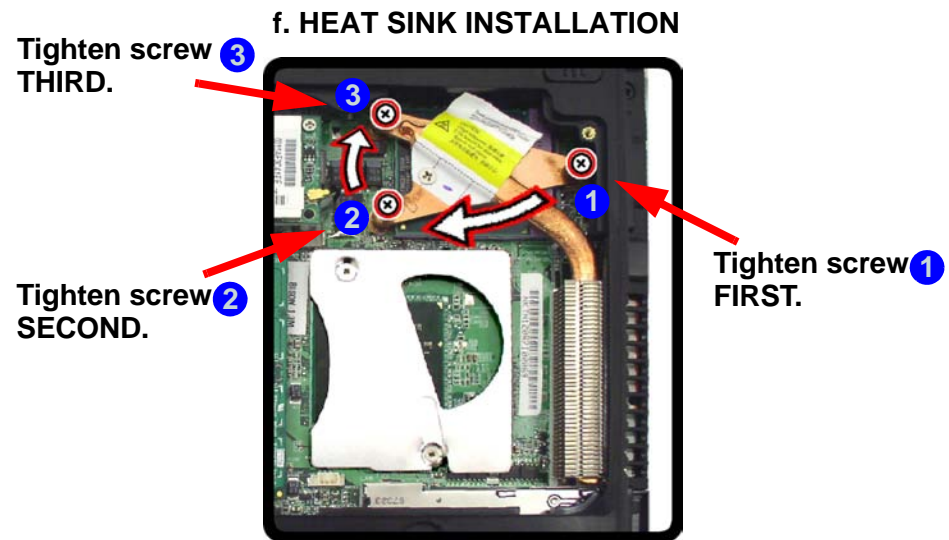


### CPU Heat Sink Screws

In order to prevent damage to the CPU it is very important that the heat sink screws are loosened in the correct order.

There are numbers printed on the heat sink. The order in which the screws should be loosened, depends on whether you are removing the CPU, or installing the CPU.

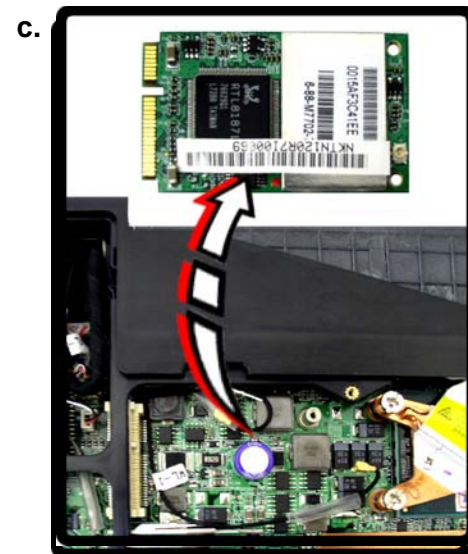
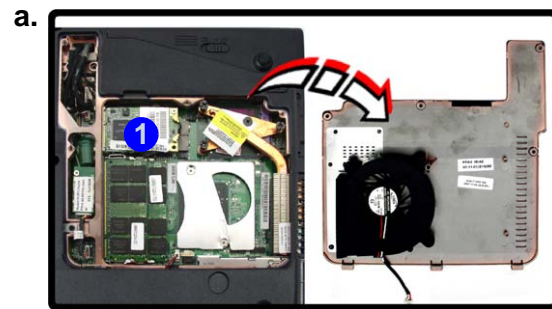
When **INSTALLING** the heat sink unit **tighten the screws in the order 1, 2, 3** (as printed on the heat sink). **Figure f** indicates the correct order to tighten the screws when installing the heat sink unit.





## Removing the Wireless LAN Module

1. Turn **off** the computer, remove the battery ([page 2 - 5](#)) and the CPU/RAM bay cover ([page 2 - 10](#)).
2. The Wireless LAN module will be visible at point **1** on the mainboard.
3. Carefully disconnect cable **2**, then remove the screw **3** from the module socket.
4. The Wireless LAN module **4** will pop-up.
5. Lift the Wireless LAN module ([Figure d](#)) up and off the computer.



*Figure 11*  
**Wireless LAN Module Removal**

- a. Remove the cover and locate the heat sink.
- b. Disconnect the cable and remove the screw.
- c. The WLAN module will pop up.
- d. Remove the WLAN module.

Note: Make sure you reconnect the antenna cable to the “Main” socket ([Figure b](#)).



4. WLAN Module

- 1 Screw

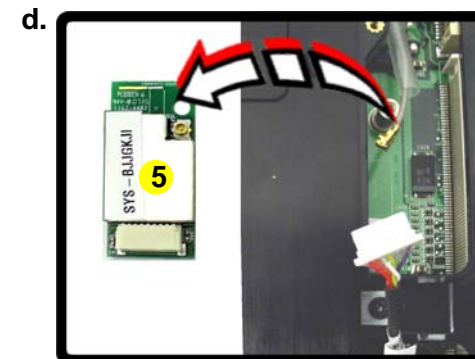
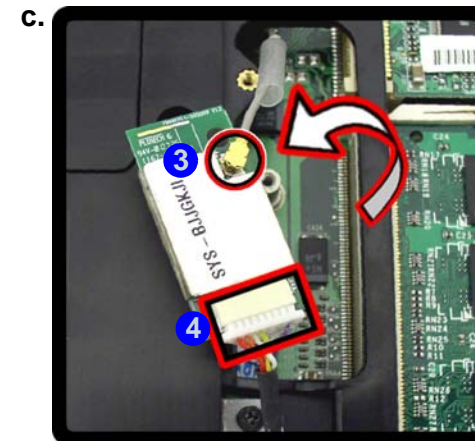
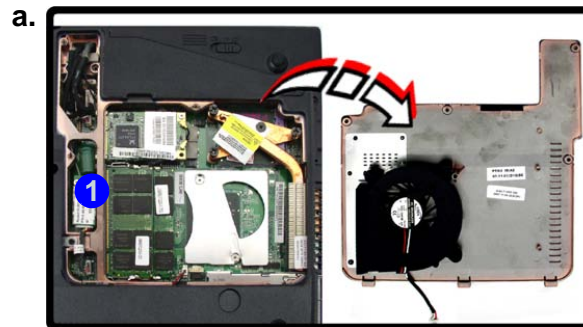
## Disassembly

Figure 12  
Bluetooth Removal

- Remove the cover and locate the Bluetooth module.
- Remove the screw.
- Disconnect the cable and separate the connector.
- Lift the Bluetooth module out.

## Removing the Bluetooth Module

- Turn **off** the computer, remove the battery ([page 2 - 5](#)), and the CPU/RAM bay cover ([page 2 - 10](#)).
- The Bluetooth module will be visible at point **1** on the mainboard.
- Remove screw **2** and turn the bluetooth module over.
- Carefully disconnect the cable **3** and separate the module from the connector **4**.
- Lift the Bluetooth module **5** up and off the computer.



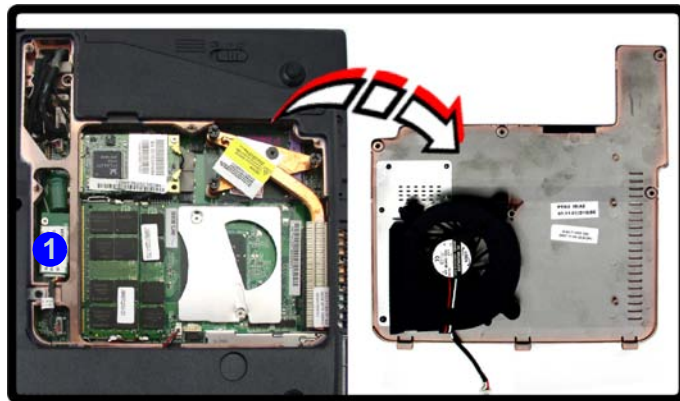
5. Bluetooth Module

- 1 Screw

## Removing the Optical (CD/DVD) Device

1. Turn off the computer, remove the battery ([page 2 - 5](#)), and the CPU/RAM bay cover ([page 2 - 10](#)).
2. Remove the screw at point ①, and use a screwdriver to carefully push out the optical device at point ②.
3. Insert the new device and carefully slide it into the computer (the device only fits one way. DO NOT FORCE IT; The screw holes should line up).
4. Insert the new device and replace the optical device screw ①.
5. **Reconnect the fan cable before replacing the bay cover** (⑤ in [Figure 6 on page 2 - 10](#)).
6. Replace the bay cover and screws.
7. Restart the computer to allow it to automatically detect the new device.

a.



b.



*Figure 13*  
**Optical Device  
Removal**

- a. Remove the cover and locate the screw.
- b. Remove the screw and push the optical device out off the computer at point 2 and remove the optical device.



3. Optical Device

- 1 Screw



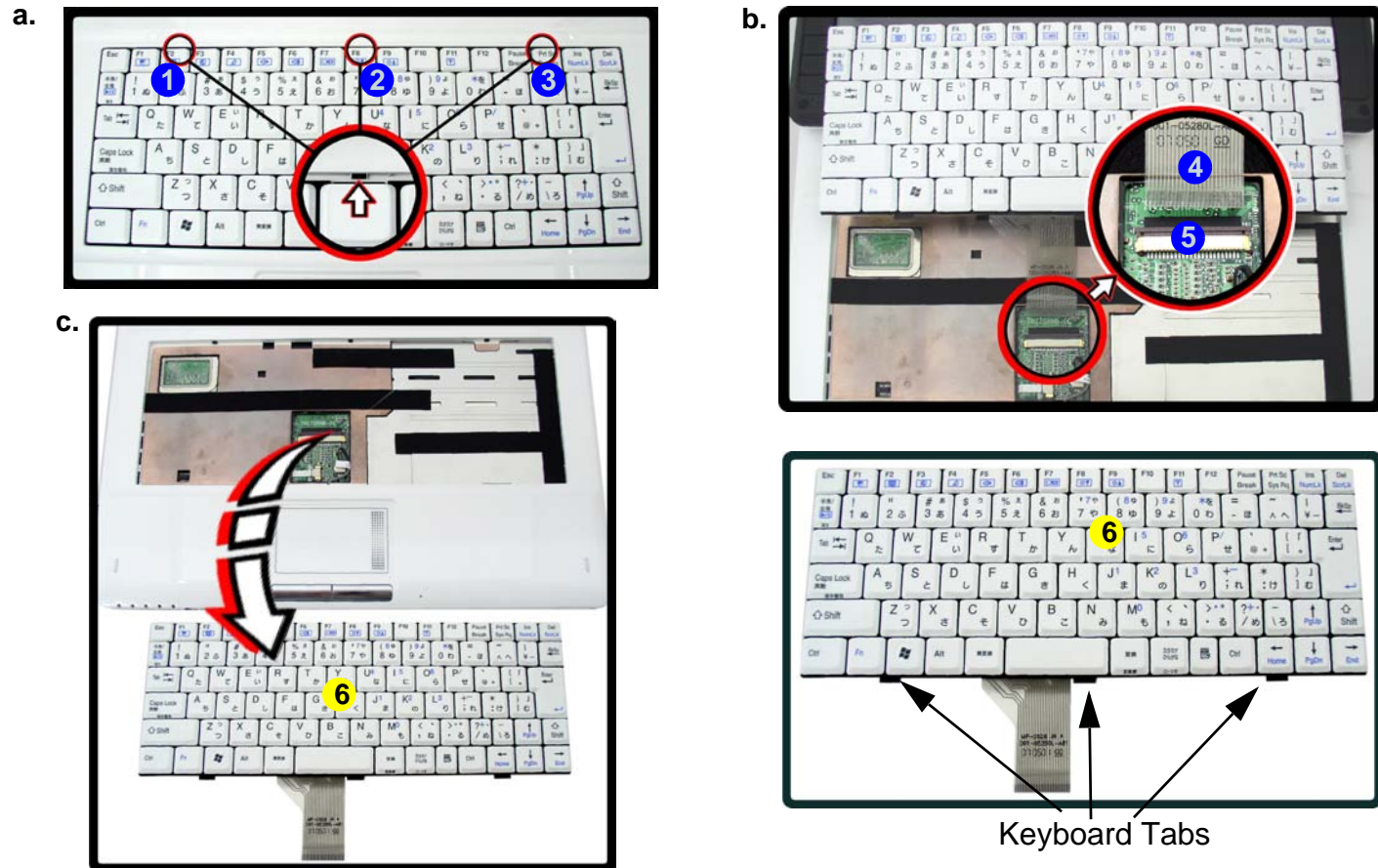
## Disassembly

Figure 14  
Keyboard Removal

- Press the three latches to release the keyboard.
- Lift the keyboard up and disconnect the cable from the locking collar.
- Remove the keyboard.

## Removing the Keyboard

- Turn **off** the computer, and remove the battery ([page 2 - 5](#)).
- Press the **three** keyboard latches at the top of the keyboard to elevate the keyboard from its normal position (you may need to use a small screwdriver to do this).
- Carefully lift the keyboard up, being careful not to bend the keyboard ribbon cable ([Figure b](#)).
- Disconnect the keyboard ribbon cable **4** from the locking collar socket **5**.
- Carefully lift up the keyboard **6** ([Figure c](#)) off the computer.



### Re-Inserting the Keyboard

When re-inserting the keyboard firstly align the **three** keyboard tabs at the bottom of the keyboard with the slots in the case.

6. Keyboard Module.

# Appendix A:Part Lists

This appendix breaks down the *TN120T* series notebook's construction into a series of illustrations. The component part numbers are indicated in the tables opposite the drawings.

**Note:** This section indicates the *manufacturer's* part numbers. Your organization may use a different system, so be sure to cross-check any relevant documentation.

**Note:** Some assemblies may have parts in common (especially screws). However, the part lists DO NOT indicate the total number of duplicated parts used.

**Note:** Be sure to check any update notices. The parts shown in these illustrations are appropriate for the system at the time of publication. Over the product life, some parts may be improved or re-configured, resulting in *new* part numbers.

## Part Lists

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### Part List Illustration Location

The following table indicates where to find the appropriate part list illustration.

*Table A - 1*  
**Part List Illustration  
Location**

Part	Pages#
Top (TN120T)	<i>page A - 3</i>
Bottom - (TN120T)	<i>page A - 4</i>
LCD - (TN120T)	<i>page A - 5</i>
DVD-Super Multi - (TN120T)	<i>page A - 6</i>
HDD - (TN120T)	<i>page A - 7</i>

Top (TN120T)

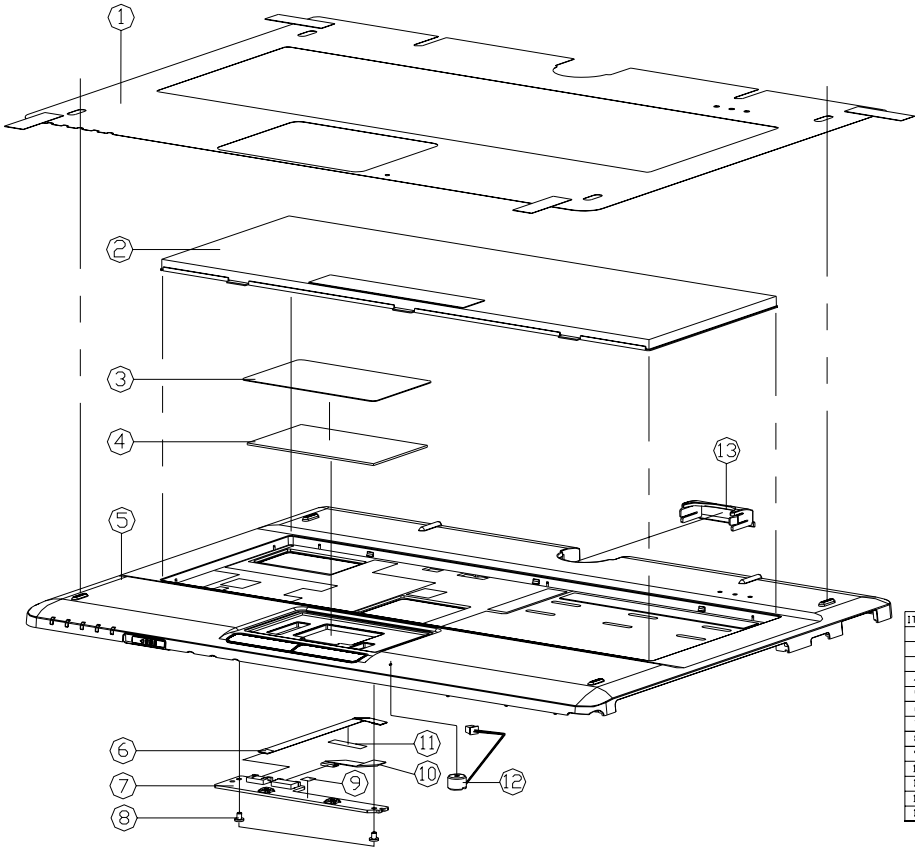


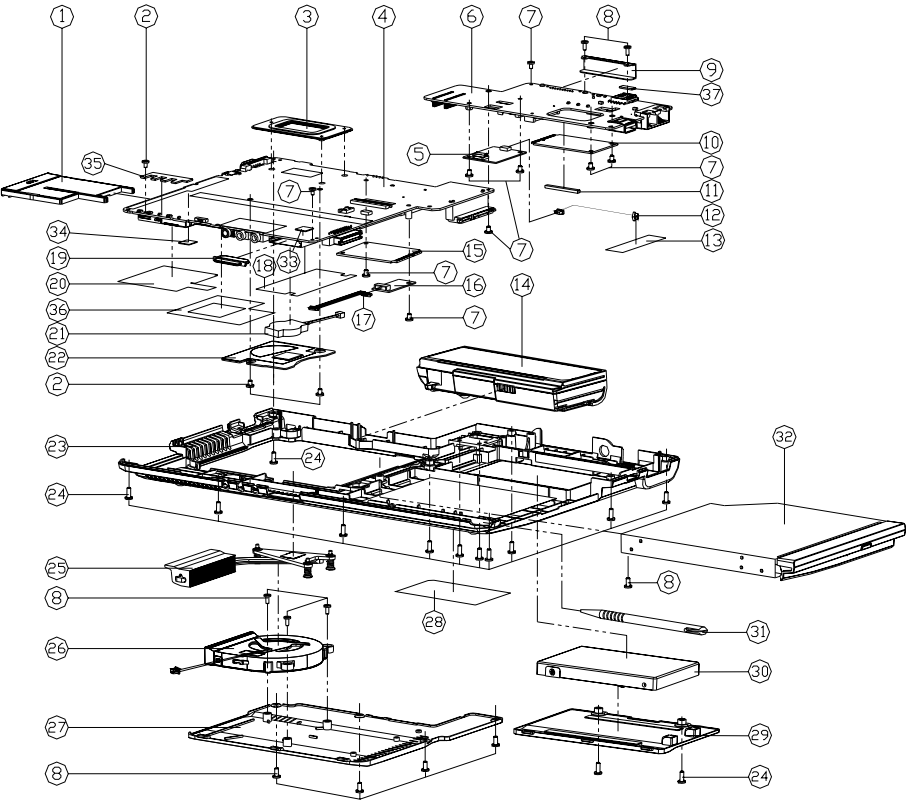
Figure A - 1  
Top (TN120T)

ITEM	PART NAME	PART NO	REMARK
1	TOP CASE PROTECT MYLAR BESS	6-40-T12R2-042	
2	TOUCH PAD MYLAR BESS	6-80-M7210-011-1	
3	TOUCH PAD MYLAR BESS	6-40-T12R2-020	
4	TOUCH PAD MYLAR BESS	6-49-M66E2-010	
5	TOP CASE MODULE	6-39-T12R2-016	
6	RTC CABLE FOR CLK TO W9	6-43-T12R2-010	
7	CLICK BOARD V3.0	6-77-T12R2-003	
8	SCREW M2X3L K1 NI ICT NY	6-35-B1120-3RA	
9	CLICK BOARD MYLAR FREQ	6-40-T12RS-021	
10	RTC CABLE FOR CLK TO TOUCH PAD	6-43-T12R2-011	
11	TAPE MYLAR (C)MYLAR H550J	6-40-M55J2-030	
12	RTC CABLE FOR CLK TO TOUCH PAD	6-23-EM55G-011	
13	TOP CASE COVER PCABS	6-42-T12R2-061	

Part Lists

Bottom (TN120T)

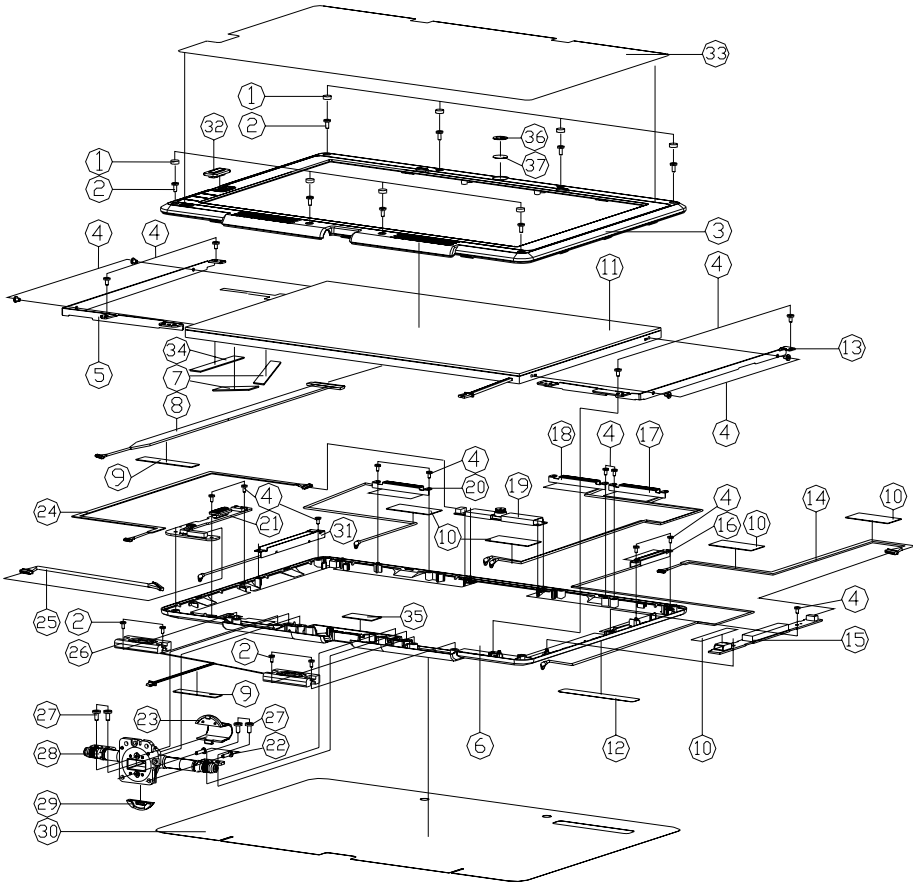
Figure A - 2  
Bottom (TN120T)



ITEM	PART NAME	PART NO	REMARK
1	DUMMY NEW CARD PC+ABS TN120R	6-42-T12R3-011	
2	SCREW M2X2.5 KI NY ICT NY 0M 0-030	6-35-B1120-2R5	
3	CPU SUPPORT BRACKET SUS 430C/ID M50X	6-33-M55NS-022	
4	MAIN BOARD V1.0 TN120T	6-77-T1200-002	
5	MEMO CARD PC+ABS TN120R	6-88-L3911-5301	
6	MULTI I/O BOARD V1.0 TN120T	6-88-M7651-8111	
7	SCREW M2X2.5 KI NY ICT NY	6-77-T1201-002	
8	SCREW M2X2.5 KI NY ICT NY	6-35-B1120-3RA	
9	W/D BRACKET SECC TN120R	6-35-B6120-5R0	
10	W/D BRACKET SECC TN120R	6-33-T12RS-021	
11	W/D BRACKET SECC TN120R	6-88-T120W-8300	
12	W/D BRACKET SECC TN120R	6-88-M810W-7900	
13	HDD RUBBER FOR MULTI BOARD SLIDING TN120R	6-47-T12RS-010	(OPTION)
14	WIRE CABLE FOR RJ-45 TO MDC 2P M725S	6-43-M725U-010	
15	TAPE MYLAR (C)MYLAR M550J	6-40-M55J2-030	
16	W/D BRACKET SECC TN120R	6-87-T12RS-4UF	
17	W/D BRACKET SECC TN120R	6-88-M8102-8700	
18	W/D BRACKET SECC TN120R	6-88-M8102-7000	
19	W/D BRACKET SECC TN120R	6-88-M72T2-42A0	
20	W/D BRACKET SECC TN120R	6-88-M735S-4200	
21	W/D BRACKET SECC TN120R	6-88-M5532-7000	
22	W/D BRACKET SECC TN120R	6-88-M72T2-4210	
23	W/D BRACKET SECC TN120R	6-88-M72T2-42A0	
24	W/D BRACKET SECC TN120R	6-88-M73T5-3900	
25	W/D BRACKET SECC TN120R	6-43-M725S-010	
26	W/D BRACKET SECC TN120R	6-40-M54RS-020	
27	W/D BRACKET SECC TN120R	6-47-M520B-010	
28	W/D BRACKET SECC TN120R	6-40-T12RS-010	
29	W/D BRACKET SECC TN120R	6-23-22015-P2C	
30	W/D BRACKET SECC TN120R	6-31-T12RN-012	
31	W/D BRACKET SECC TN120R	6-39-T12R3-012	
32	W/D BRACKET SECC TN120R	6-35-B6125-BR0	
33	W/D BRACKET SECC TN120R	6-31-T12RS-102-1	
34	W/D BRACKET SECC TN120R	6-23-AT12R-021	
35	W/D BRACKET SECC TN120R	6-42-T12RS-102	
36	W/D BRACKET SECC TN120R	6-45-T1203-010	
37	W/D BRACKET SECC TN120R	6-42-T12R-J-01	
	W/D HDD ASSY TN120R	6-79-T12R-J-010	
	W/D HDD ASSY TN120R	6-42-T12R-J-010	
	W/D HDD ASSY TN120R	6-79-T120100-000	
	W/D HDD ASSY TN120R	6-47-T12RS-021	
	W/D HDD ASSY TN120R	6-47-T12RS-031	
	W/D HDD ASSY TN120R	6-47-T12R2-080	
	W/D HDD ASSY TN120R	6-40-00151-550	
	W/D HDD ASSY TN120R	6-47-00190-10E	



LCD (TN120T)

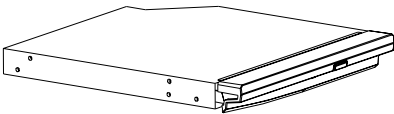
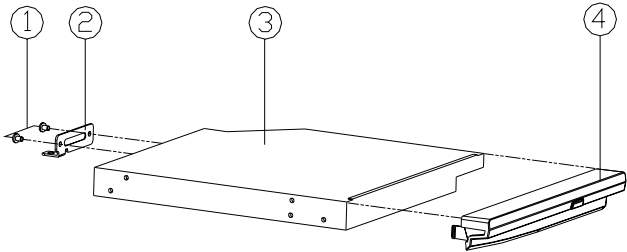


ITEM	PART NAME	PART NO	REMARK
1	LED BOMB RUBBER(NOT) SLIDE	6-47-T12R1-031	
2	SCREW M2.5X4.0 3-40 BK/2 CT NY	6-35-B6120-SR0	
3	LED FRONT COVER MODULE TN120R	6-39-T12R1-012	
4	SCREW M2.5X4.0 KI NI ICT NY	6-35-B1120-SRA	
5	LED BRACKET L SECC	6-33-T12R1-023	
6	LED BACK COVER MODULE	6-39-T12R1-023	
7	LED CABLE SPONGE CR SPONGE TN120R	6-47-T12R1-050	
8	W/C CABLE FOR LED TO W/D ZIF TEFLEX	6-43-T12R1-012	
9	MS40G FOR MS4 LED CABLE	6-40-00150-540	
10	TAPE MYLAR (C)MYLAR M550J	6-40-M55J2-030	
11	LED BOMB RUBBER(NOT) SLIDE	6-50-FC255-102-1	
11	LED BOMB RUBBER(NOT) SLIDE	6-50-FC255-102-2	
12	MS40G (LOCKSTYLE-NOT)	6-45-MS4G1-020-1	
13	LED BRACKET R SECC	6-33-T12R1-013	
14	W/C CABLE FOR INVERTER TO W/D ZIF TEFLEX	6-43-T12RR-012	
15	LED BOMB RUBBER(NOT) SLIDE	6-76-M660R-011	
15	LED BOMB RUBBER(NOT) SLIDE	6-76-M660R-010	
16	LED BOMB RUBBER(NOT) SLIDE	6-23-T12R-012	
17	LED BOMB RUBBER(NOT) SLIDE	6-23-T12R-052	
18	LED BOMB RUBBER(NOT) SLIDE	6-23-T12R-032	
19	LED CAMERA BUSH T14 M25X40-000 NYWID	6-88-M5E4C-4921	OPTION
19	LED CAMERA BUSH T14 M25X40-000 ZK W40S	6-88-M5E4C-4915	OPTION
19	LED CAMERA BUSH T14 M25X40-000 ZK W40S	6-88-M57RC-743	OPTION
20	LED BOMB RUBBER(NOT) SLIDE	6-23-T12R-022	
21	LED BOMB RUBBER(NOT) SLIDE	6-77-T12R1-N04	
22	SCREW M2.5X4.0 KI BK/2 NY ICT	6-35-B6125-BR0	
23	HINGE FRONT COVER ABS TN120R	6-42-T12RY-011	
24	W/C CABLE FOR LED TO W/D ZIF TEFLEX	6-43-T12RY-013	
25	W/C CABLE FOR LED TO W/D ZIF TEFLEX	6-43-T12R0-022	
26	SPEAKER MODULE T14 BY 15-25000-010 TN120R	6-23-S12R-011	
27	SCREW M2.5X4.0 KI NI ICT NY	6-35-B1125-SRA	
28	LCD HINGER ZN-5 TN120R	6-33-T12R1-043	
29	HINGE BACK COVER ABS TN120R	6-42-T12RY-021	
30	LED BACK COVER PROTECT FILM	6-40-T12R1-082	
31	LED BOMB RUBBER(NOT) SLIDE	6-23-T12R1-043	
32	W/D FINGERPRINT MODULE TN120R	6-42-T12R1-100	FOR W/D FINGERPRINT
33	LED FRONT COVER PROTECT MYLAR PC TN120R	6-40-T12R1-0X0	
34	LED CABLE SPONGE B SPONGE TN120R	6-47-T12R1-090	
35	SPONGE (25X40X1.5) FOR LED W/SPR	6-47-0019A-252	
36	W/CCD RING MYLAR PC TN120R	6-40-T12R1-021	FOR W/CCD
37	W/D CCD RING MYLAR PC TN120R	6-40-T12R1-011	FOR W/D CCD

Figure A - 3  
LCD (TN120T)

DVD-Super Multi (TN120T)

Figure A - 4  
DVD-Super Multi  
(TN120T)



ITEM	PART NAME	PART NO	REMARK
1	SCREW M2*3L K1 NI ICT NY	6-35-B1120-3RA	
2	CD-ROM LOCK BRACKET,SEC	6-33-M55GZ-012	
3	CD-ROM LOCK BRACKET,SEC	6-85-A0724-T03	
4	SUPER MULTI BEZEL MODULE TN120R	6-42-T12RQ-102	

HDD (TN120T)

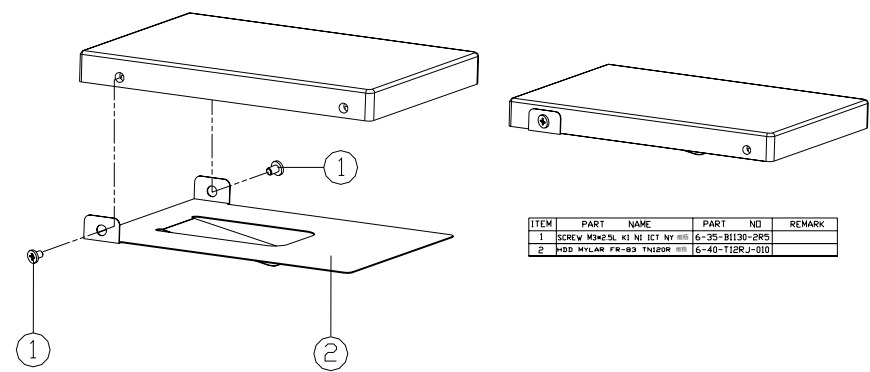


Figure A - 5  
HDD (TN120T)



# Appendix B:Schematic Diagrams

This appendix has circuit diagrams of the *TN120T* notebook's PCB's. The following table indicates where to find the appropriate schematic diagram.

Diagram - Page	Diagram - Page	Diagram - Page
<i>SYSTEM BLOCK DIAGRAM - Page B - 2</i>	<i>ICH9-M 4/5, Power - Page B - 16</i>	<i>POWER 1.05VS/1.5V/3.3V/5V - Page B - 28</i>
<i>Intel Penryn 1/2 - Page B - 3</i>	<i>ICH9-M 4/5, Power - Page B - 16</i>	<i>POWER 1.8V/0.9VSM - Page B - 29</i>
<i>Intel Penryn 2/2 - Page B - 4</i>	<i>ICH9-M 5/5, GND - Page B - 17</i>	<i>CPU VCORE - Page B - 30</i>
<i>Cantiga 1/6, Host - Page B - 5</i>	<i>Clock Generator - Page B - 18</i>	<i>DC-IN, CHARGER - Page B - 31</i>
<i>Cantiga 2/6, VGA, CRT - Page B - 6</i>	<i>Panel, Inverter, CRT, FTP, TP, CIR - Page B - 19</i>	<i>Multi Board, PCIE LAN RTL8111DL - Page B - 32</i>
<i>Cantiga 3/6, RAM - Page B - 7</i>	<i>New Card, Mini PCIE, TPM - Page B - 20</i>	<i>Multi Board, LED, Docking, USB - Page B - 33</i>
<i>Cantiga 4/6, Power - Page B - 8</i>	<i>ENE MR510, 7-in-1 - Page B - 21</i>	<i>Multi Board, 3G, MDC, RJ11 - Page B - 34</i>
<i>Cantiga 5/6, Power - Page B - 9</i>	<i>Audio Codec ALC662 - Page B - 22</i>	<i>FPT ExBoard FINGERPRINT - Page B - 35</i>
<i>Cantiga 6/6, GND - Page B - 10</i>	<i>KBC-ITE IT8502E - Page B - 23</i>	<i>FPT MBoard FINGERPRINT ET&amp;T - Page B - 36</i>
<i>DDRII SO-DIMM 0 - Page B - 11</i>	<i>ODD, CCD, BT, Multi I/O - Page B - 24</i>	<i>FPT MBoard TP, KEY, CIR ET&amp;T - Page B - 37</i>
<i>DDRII SO-DIMM 1 - Page B - 12</i>	<i>LED, FAN, CLICK, LID, G-Sensor - Page B - 25</i>	<i>Click Board - Page B - 38</i>
<i>ICH9-M 1/5, SATA - Page B - 13</i>	<i>3VS, 5VS, POWER S/W - Page B - 26</i>	
<i>ICH9-M 2/5, PCIE, PCI, USB - Page B - 14</i>	<i>POWER VDD3/VDD5 - Page B - 27</i>	

*Table B - 1*  
**Schematic  
Diagrams**

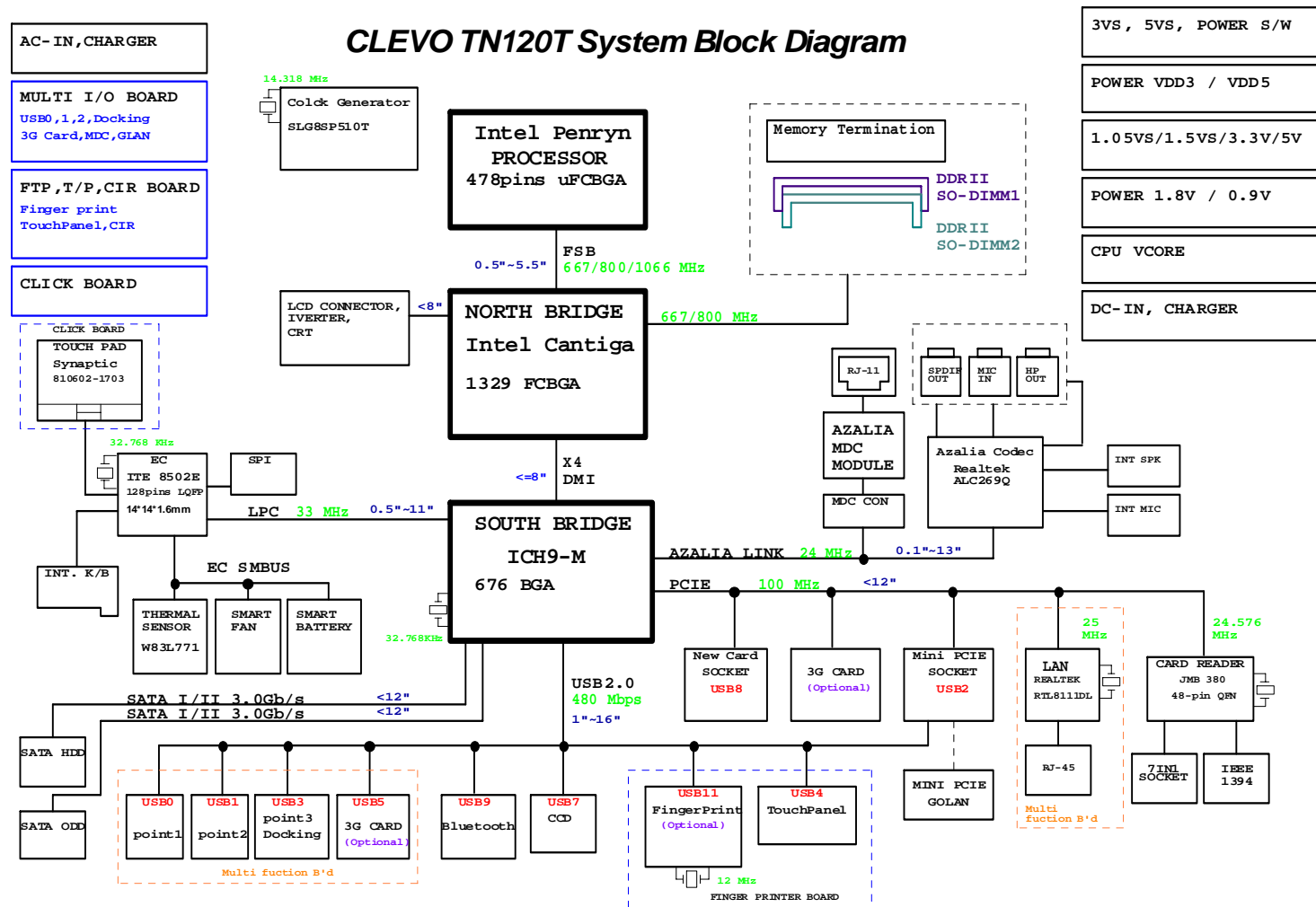


## Version Note

The schematic diagrams in this chapter are based upon version 6-7P-T1205-003. If your mainboard (or other boards) are a later version, please check with the Service Center for updated diagrams (if required).

# SYSTEM BLOCK DIAGRAM

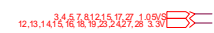
Sheet 1 of 37  
SYSTEM BLOCK  
DIAGRAM



**Intel Penryn 1/2 B - 3**

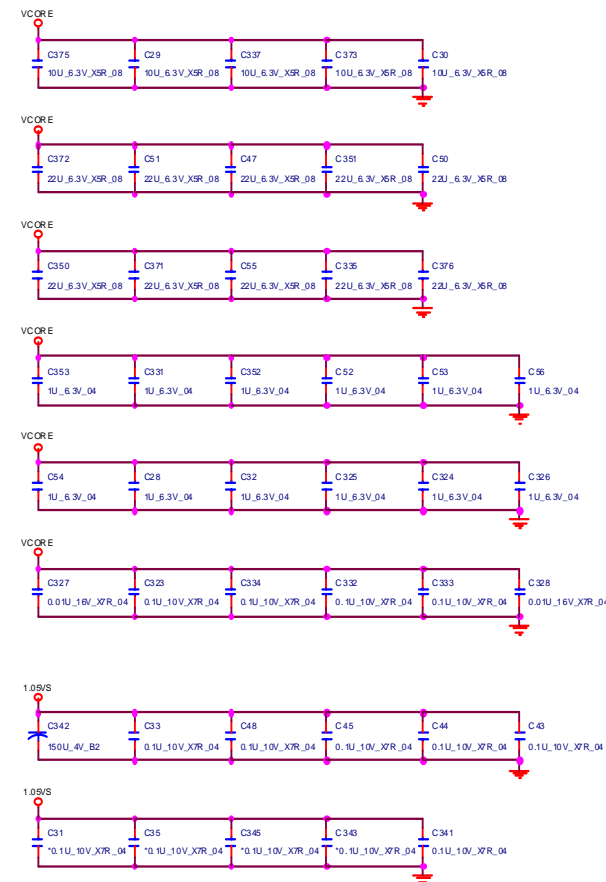
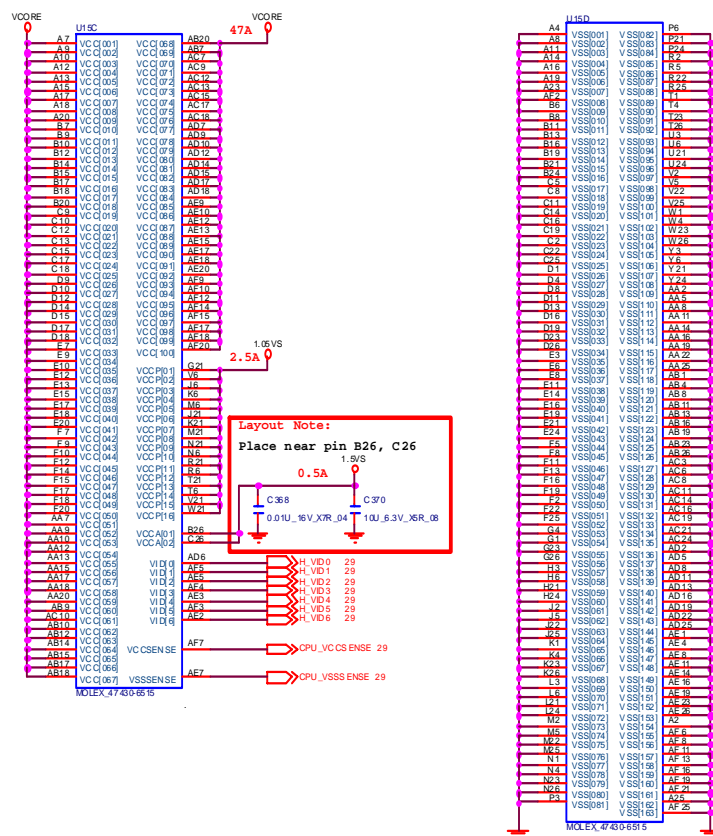
## B. Schematic Diagrams

**Sheet 2 of 37**  
**Intel Penryn 1/2**



## Intel Penryn 2/2

Sheet 3 of 37  
Intel Penryn 2/2

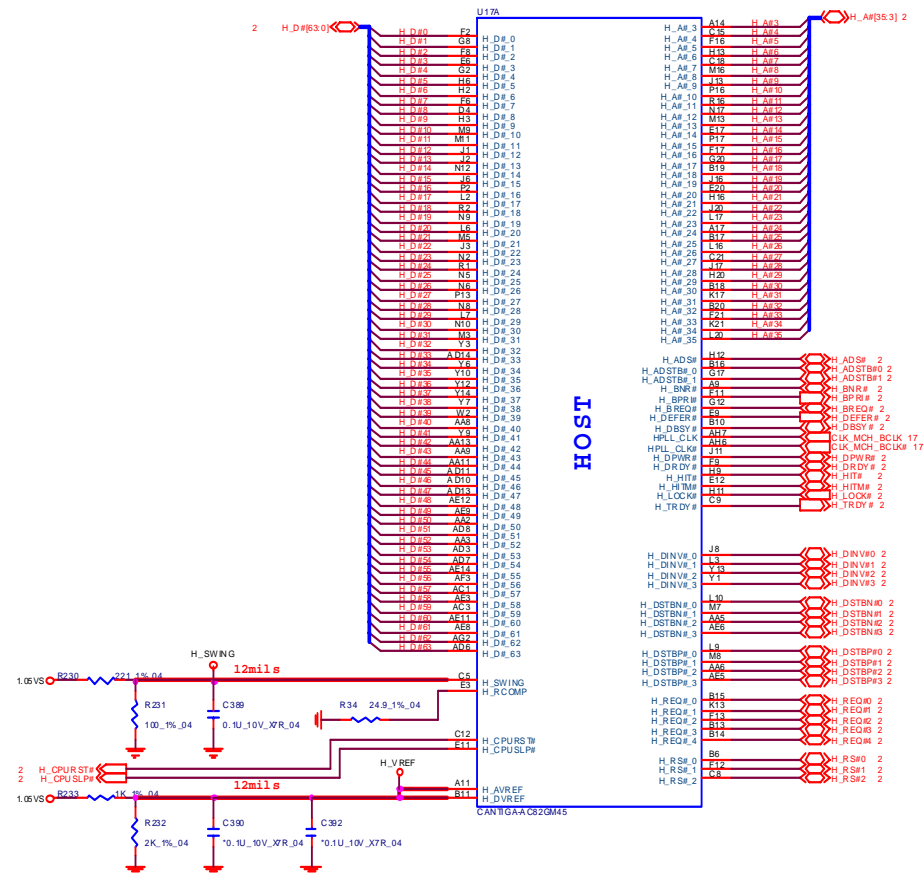


2,4,5,7,8,12,15,17,27 1.05VS  
8,12,13,15,19,23,27 1.5V/S  
29 VCORE

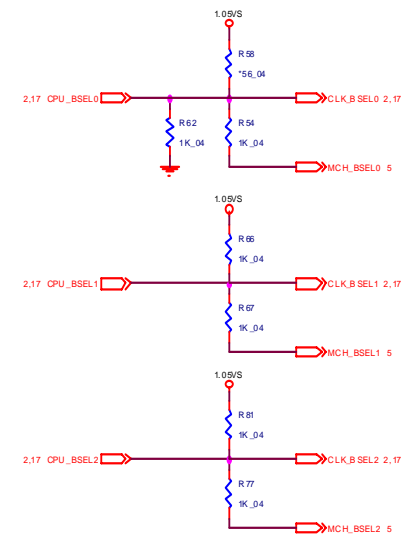


\_\_\_\_\_

## Cantiga 1/6, Host



CPU_BSEL[2:0] (FSB) DAFAULT SETTING			
	CPU_BSEL2	CPU_BSEL1	CPU_BSEL0
266	L	L	L
200	L	H	L
166	L	H	H



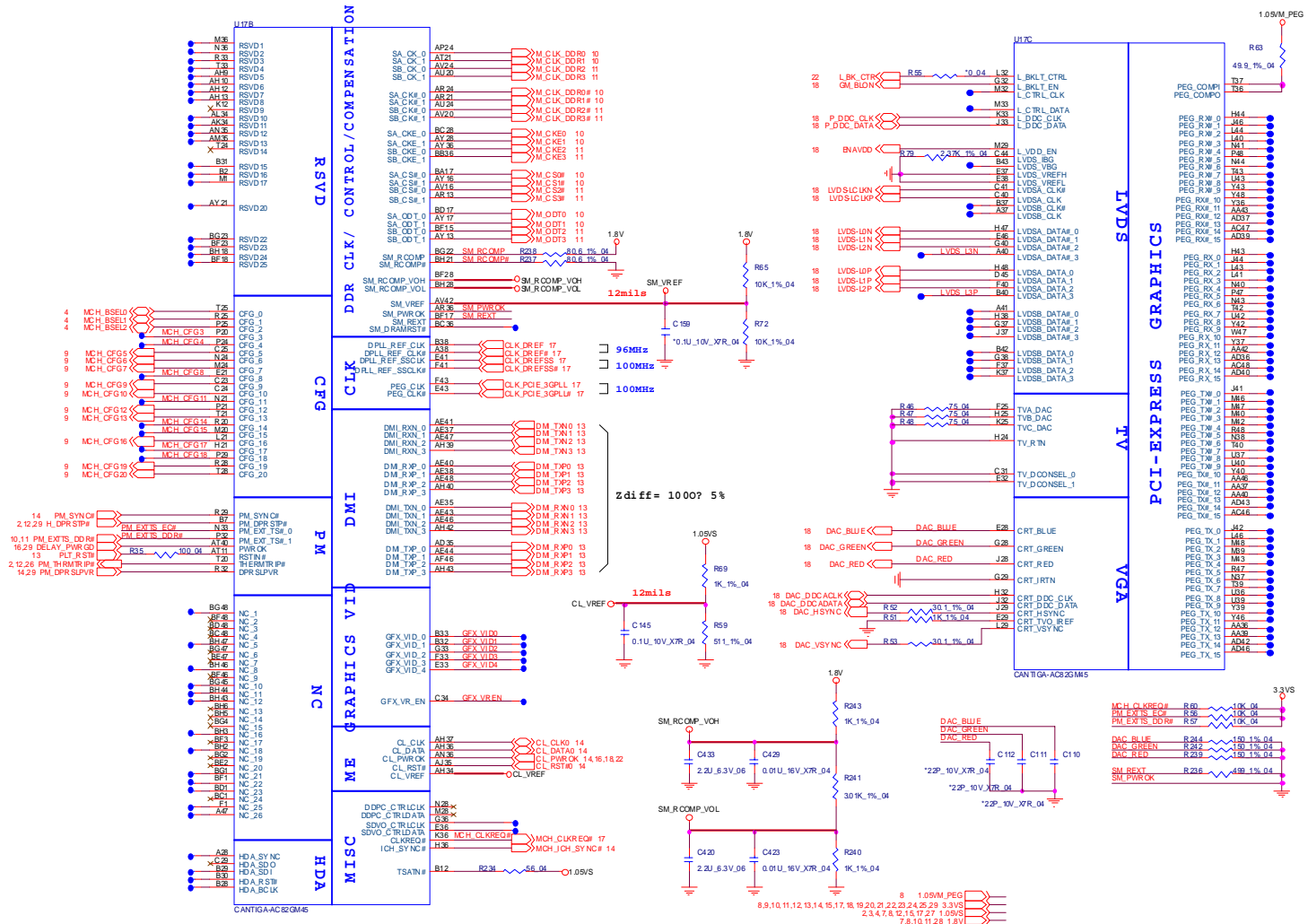
**Sheet 4 of 37**  
**Cantiga 1/6, Host**

## B.Schematic Diagrams

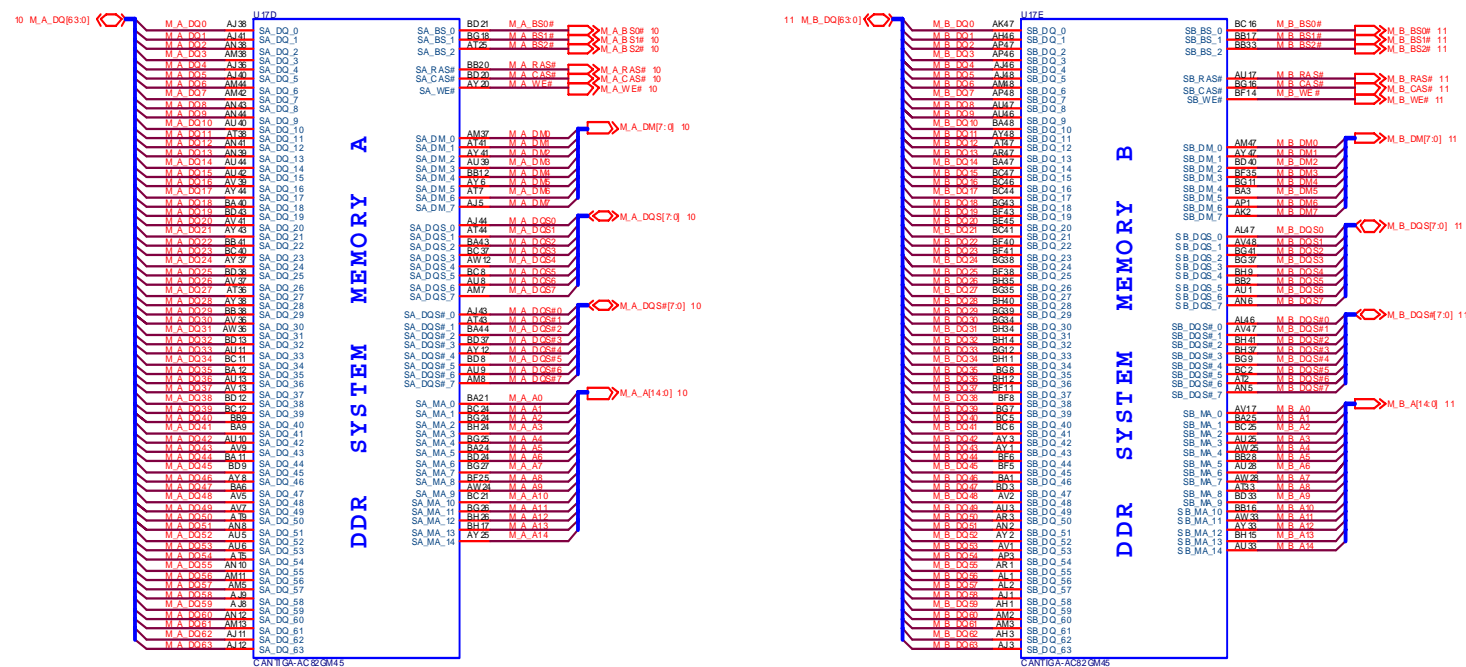
## Schematic Diagrams

## Cantiga 2/6, VGA, CRT

Sheet 5 of 37  
Cantiga 2/6,  
VGA, CRT

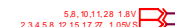


## Cantiga 3/6, RAM

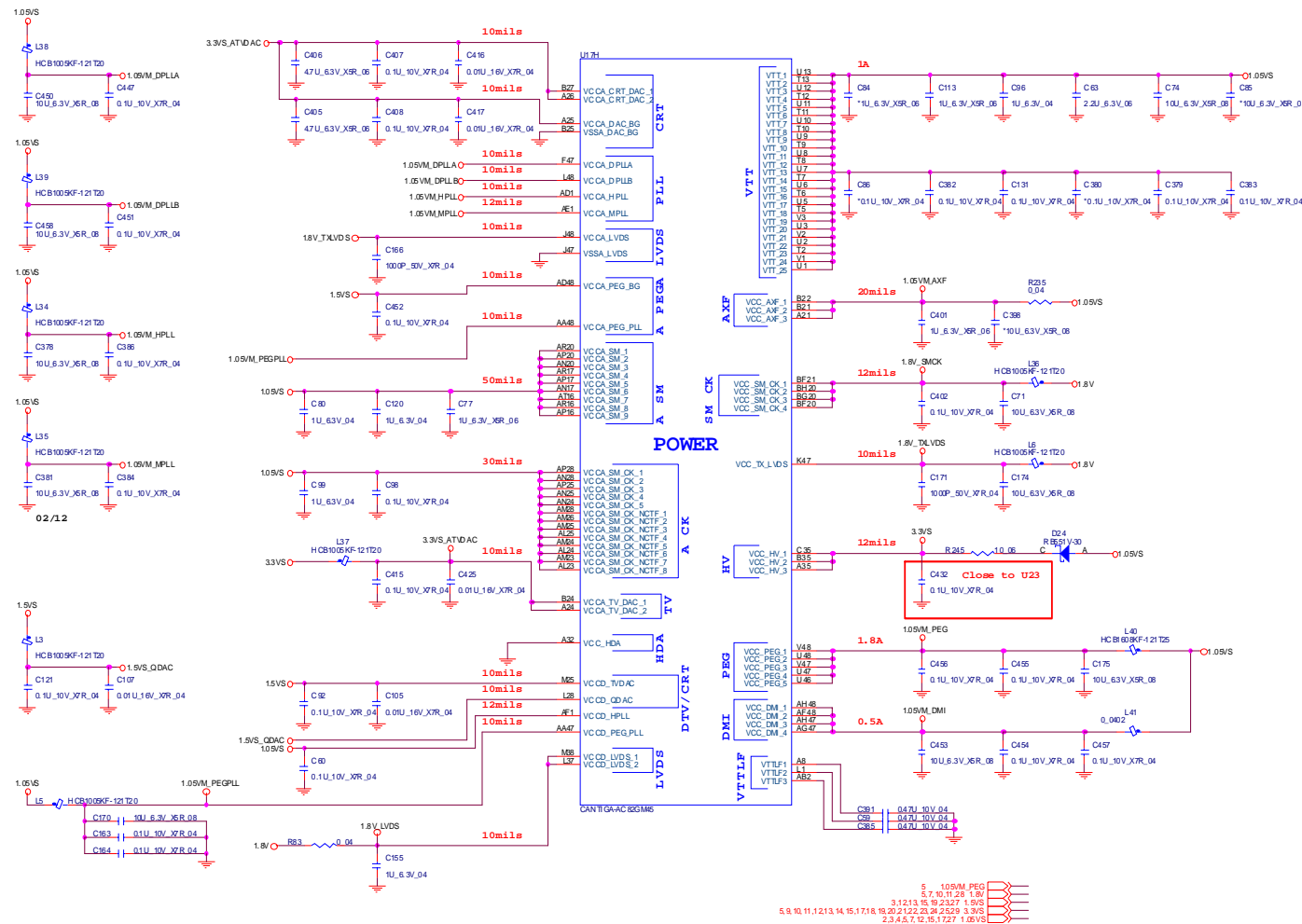
Sheet 6 of 37  
Cantiga 3/6, RAM

## B.Schematic Diagrams

Sheet 7 of 37  
Cantiga 4/6, Power



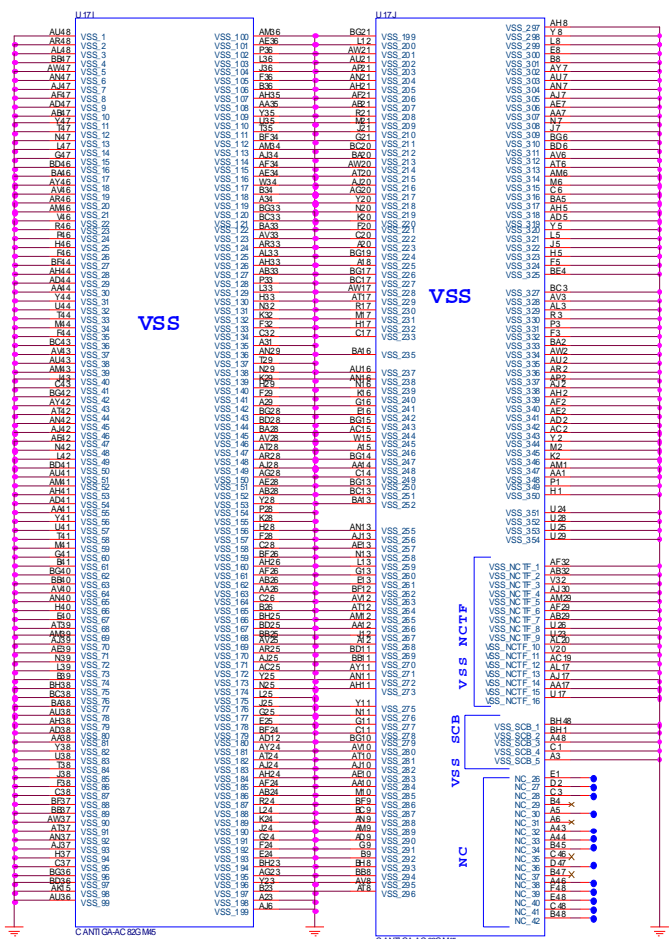
**Cantiga 5/6, Power B - 9**



Schematic Diagrams

Cantiga 6/6, GND

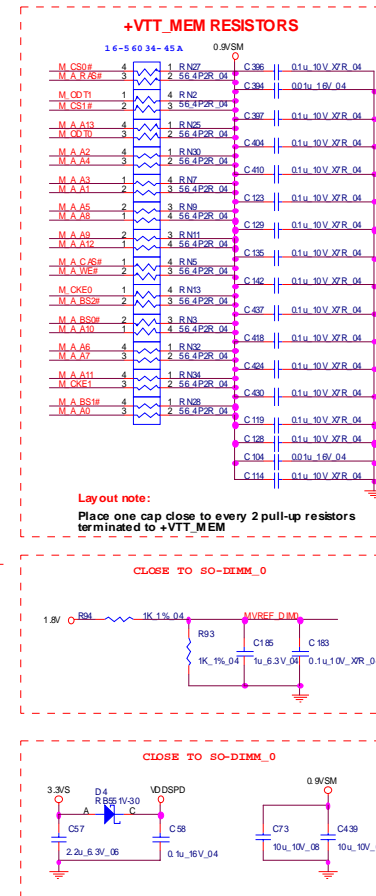
Sheet 9 of 37  
Cantiga 6/6, GND



58,1011,12,13,14,15,17,18,19,20,21,22,23,24,25,29 3 3/8

## B. Schematic Diagrams

## SO-DIMM 0

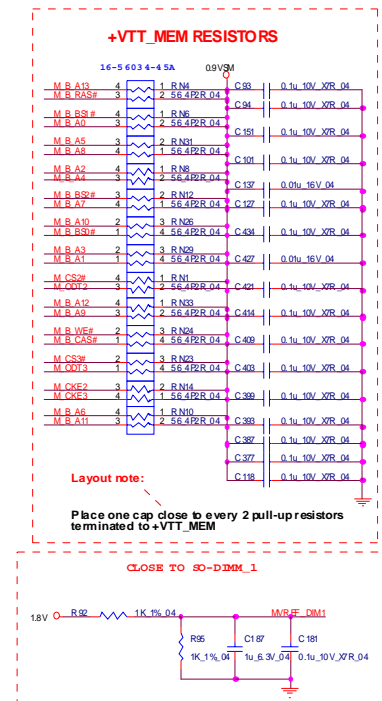
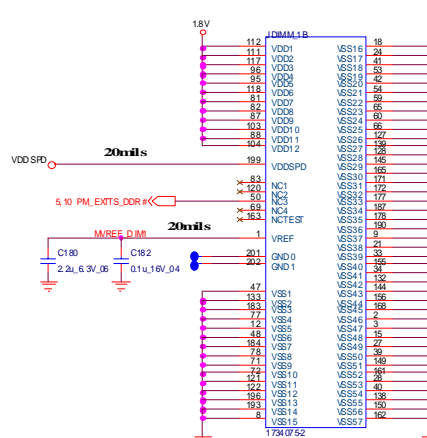
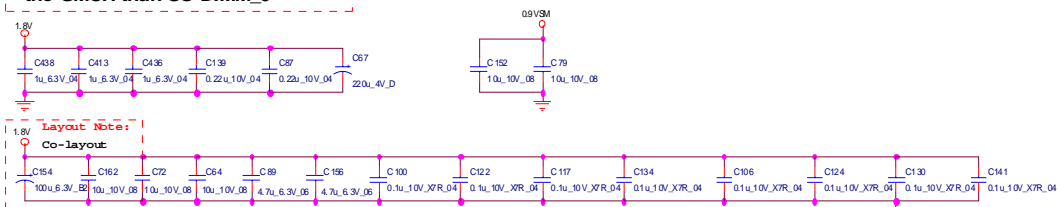
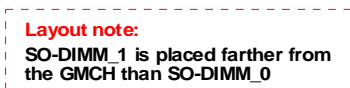


## DDRII SO-DIMM 0 B - 11



## SO-DIMM 1

**Layout Note:**  
signal/space/signal:  
9 / 5 / 9







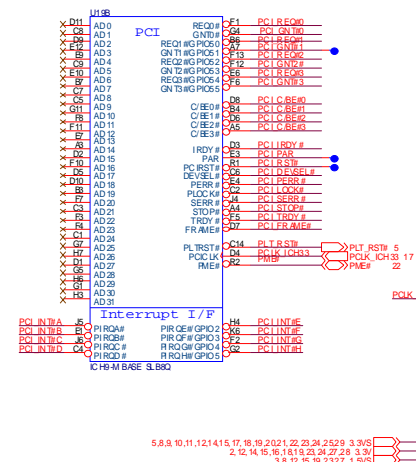
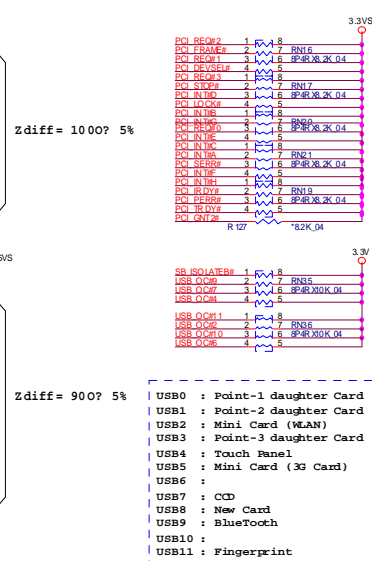
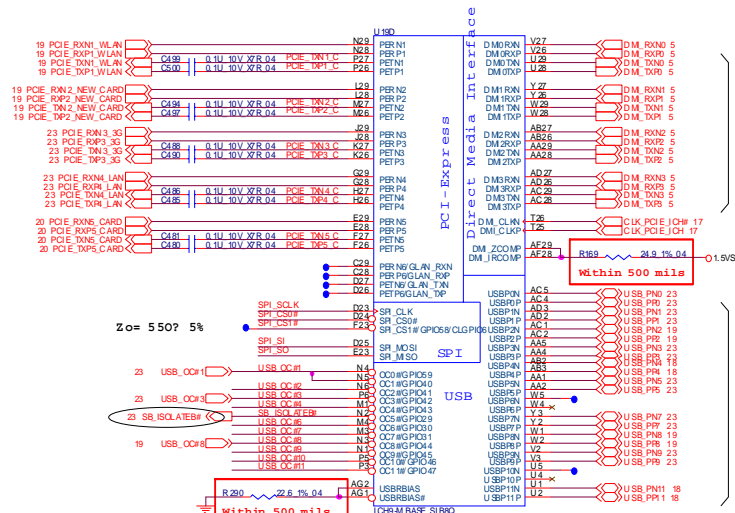
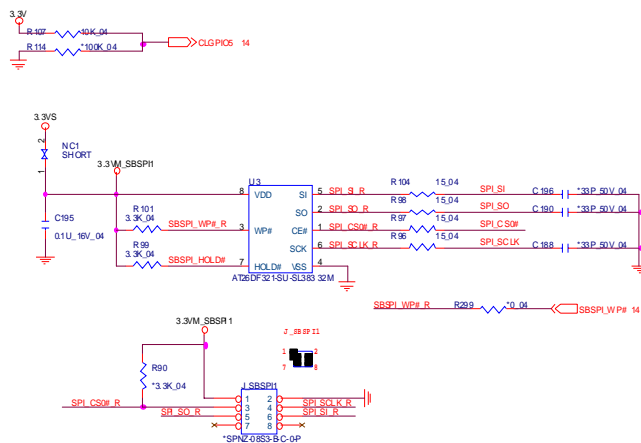
## B.Schematic Diagrams

	Boot BIOS Strap		
	Strap	PCI_GNT#0	SPI_CS1#
SPI	01	Stuff	No stuff
PCI	10	No stuff	Stuff
LPC(default)	11	No stuff	No stuff

PCI_GNT#3	A16 swap override Strap
Stuff	Enable
No stuff	Disable <b>Default</b>

SPI_SI	iTPM Enable
Stuff	Enable <b>Default</b>
No stuff	Disable

CLGPIO5	iTPM Enable
HIGH	Enable <b>Default</b>
LOW	Disable

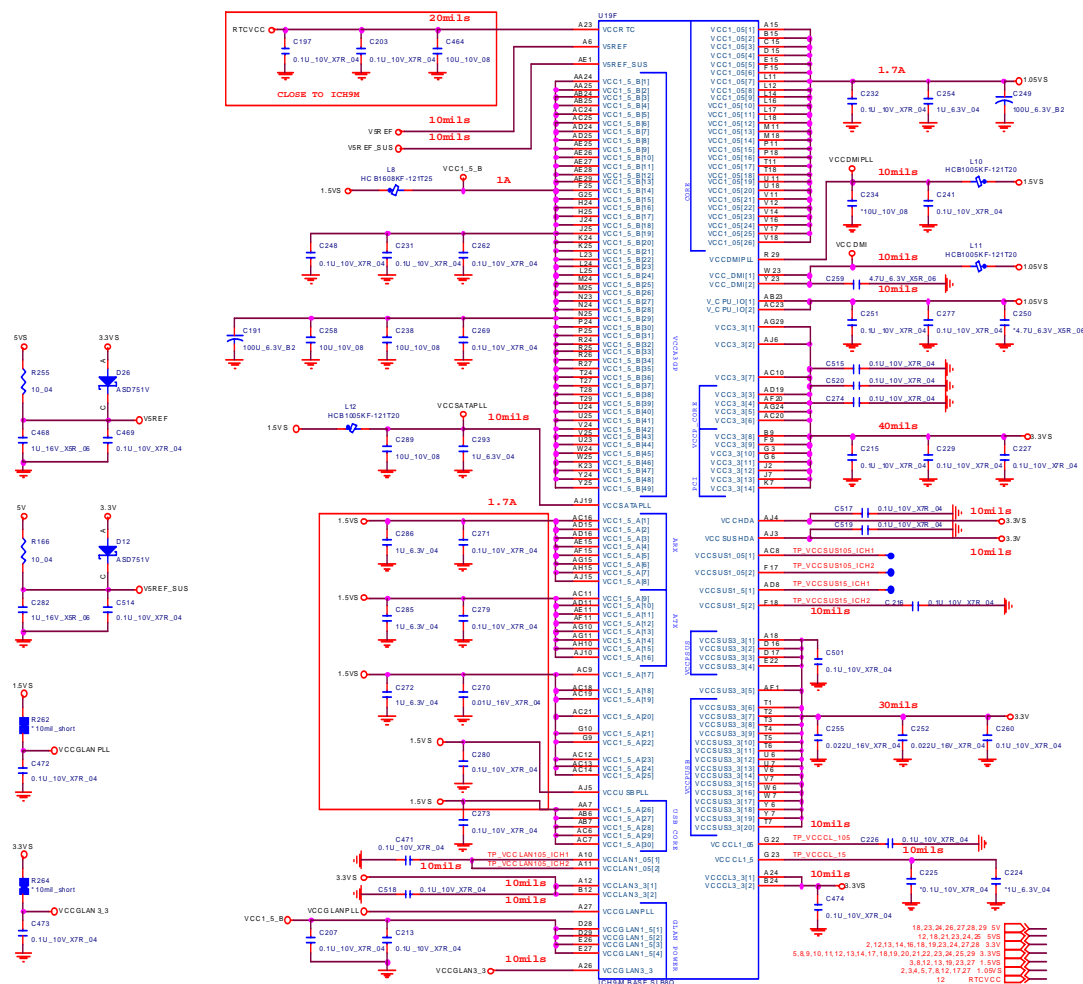


Sheet 14 of 37  
ICH9-M 3/5, GPIO,  
PWR Management



## ICH9-M 4/5, Power

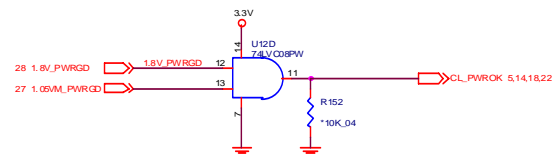
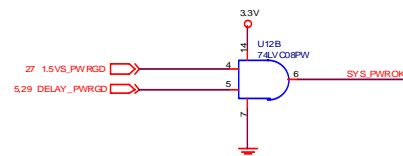
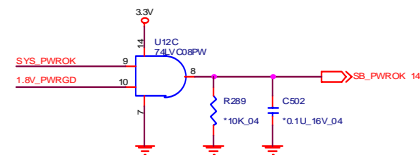
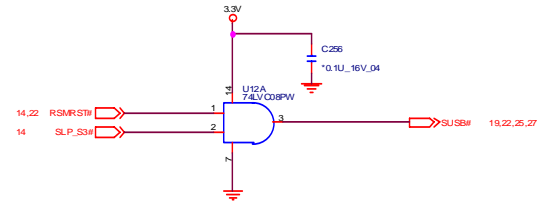
Sheet 15 of 37  
ICH9-M 4/5, Power



## ICH9-M 5/5, GND

U1 BE			HS
AA2	VSS1[1]	VSS1[107]	J23
AA7	VSS1[2]	VSS1[108]	J26
AA3	VSS1[3]	VSS1[109]	J27
AB1	VSS1[4]	VSS1[110]	AC22
AA6	VSS1[5]	VSS1[111]	K28
AB2	VSS1[6]	VSS1[112]	K29
AB3	VSS1[7]	VSS1[113]	L13
AB5	VSS1[8]	VSS1[114]	L2
AB4	VSS1[9]	VSS1[115]	L15
AF17	VSS1[10]	VSS1[116]	L26
AD26	VSS1[11]	VSS1[117]	L27
AC27	VSS1[12]	VSS1[118]	L5
AD1	VSS1[13]	VSS1[119]	L7
AD3	VSS1[14]	VSS1[120]	M12
AD10	VSS1[15]	VSS1[121]	M13
AD12	VSS1[16]	VSS1[122]	M14
AD13	VSS1[17]	VSS1[123]	M15
AD14	VSS1[18]	VSS1[124]	M16
AD17	VSS1[19]	VSS1[125]	M17
AD18	VSS1[20]	VSS1[126]	M24
AD21	VSS1[21]	VSS1[127]	M28
AD26	VSS1[22]	VSS1[128]	M29
AD23	VSS1[23]	VSS1[129]	N11
AD1	VSS1[24]	VSS1[130]	N12
AD5	VSS1[25]	VSS1[131]	N13
AD6	VSS1[26]	VSS1[132]	N14
AD7	VSS1[27]	VSS1[133]	N15
AD9	VSS1[28]	VSS1[134]	N16
VSS1[29]	VSS1[135]	VSS1[135]	N17
AE12	VSS1[30]	VSS1[136]	N18
AE11	VSS1[31]	VSS1[137]	N26
AE14	VSS1[32]	VSS1[138]	N27
AE16	VSS1[33]	VSS1[139]	P12
AE17	VSS1[34]	VSS1[140]	P13
AE20	VSS1[35]	VSS1[141]	P14
AE21	VSS1[36]	VSS1[142]	P15
AE1	VSS1[37]	VSS1[143]	P16
AE4	VSS1[38]	VSS1[144]	P17
AE5	VSS1[39]	VSS1[145]	P2
AE3	VSS1[40]	VSS1[146]	P21
AF13	VSS1[41]	VSS1[147]	P28
AF16	VSS1[42]	VSS1[148]	P29
AF18	VSS1[43]	VSS1[149]	P4
AF22	VSS1[44]	VSS1[150]	P7
AH26	VSS1[45]	VSS1[151]	R11
AH26	VSS1[46]	VSS1[152]	R12
AH27	VSS1[47]	VSS1[153]	R13
AF5	VSS1[48]	VSS1[154]	R14
AF7	VSS1[49]	VSS1[155]	R15
AE9	VSS1[50]	VSS1[156]	R16
AG13	VSS1[51]	VSS1[157]	R17
AG16	VSS1[52]	VSS1[158]	R18
AG16	VSS1[53]	VSS1[159]	R26
AG20	VSS1[54]	VSS1[160]	T12
AG23	VSS1[55]	VSS1[161]	T13
AG3	VSS1[56]	VSS1[162]	T14
AG6	VSS1[57]	VSS1[163]	T15
AH8	VSS1[58]	VSS1[164]	T16
AH12	VSS1[59]	VSS1[165]	T17
AH14	VSS1[60]	VSS1[166]	T23
AH17	VSS1[61]	VSS1[167]	U26
AH19	VSS1[62]	VSS1[168]	U12
AH2	VSS1[63]	VSS1[169]	U13
AH25	VSS1[64]	VSS1[170]	U14
AH26	VSS1[65]	VSS1[171]	U15
AH26	VSS1[66]	VSS1[172]	U16
AH26	VSS1[67]	VSS1[173]	U17
AH1	VSS1[68]	VSS1[174]	AD23
AH12	VSS1[69]	VSS1[175]	D26
AH14	VSS1[70]	VSS1[176]	U27
AJ17	VSS1[71]	VSS1[177]	U3
AJ3	VSS1[72]	VSS1[178]	V1
BT1	VSS1[73]	VSS1[179]	V13
BT4	VSS1[74]	VSS1[180]	V15
BT7	VSS1[75]	VSS1[181]	V23
BT	VSS1[76]	VSS1[182]	V28
B2	VSS1[77]	VSS1[183]	V29
B23	VSS1[78]	VSS1[184]	V4
B6	VSS1[79]	VSS1[185]	V5
B9	VSS1[80]	VSS1[186]	W26
C26	VSS1[81]	VSS1[187]	W27
C27	VSS1[82]	VSS1[188]	W3
E11	VSS1[83]	VSS1[189]	Y1
E14	VSS1[84]	VSS1[190]	Y28
E18	VSS1[85]	VSS1[191]	Y29
E2	VSS1[86]	VSS1[192]	Y4
E21	VSS1[87]	VSS1[193]	Y5
E24	VSS1[88]	VSS1[194]	AG28
E5	VSS1[89]	VSS1[195]	AH6
E9	VSS1[90]	VSS1[196]	AF2
F16	VSS1[91]	VSS1[197]	B25
F28	VSS1[92]	VSS1[198]	A1
G21	VSS1[93]	VSS1[199]	A2
G12	VSS1[94]	VSS1[200]	A28
G14	VSS1[95]	VSS1[201]	A29
G16	VSS1[96]	VSS1[202]	AH1
G21	VSS1[97]	VSS1[203]	AH29
G24	VSS1[98]	VSS1[204]	AJ1
G26	VSS1[99]	VSS1[205]	AJ2
G27	VSS1[100]	VSS1[206]	AJ28
G9	VSS1[101]	VSS1[207]	AJ29
H2	VSS1[102]	VSS1[208]	B1
H24	VSS1[103]	VSS1[209]	B29
H26	VSS1[104]	VSS1[210]	B39
H29	VSS1[105]	VSS1[211]	B39
H29	VSS1[106]	VSS1[212]	B39

ICH9-M BASE SLB00

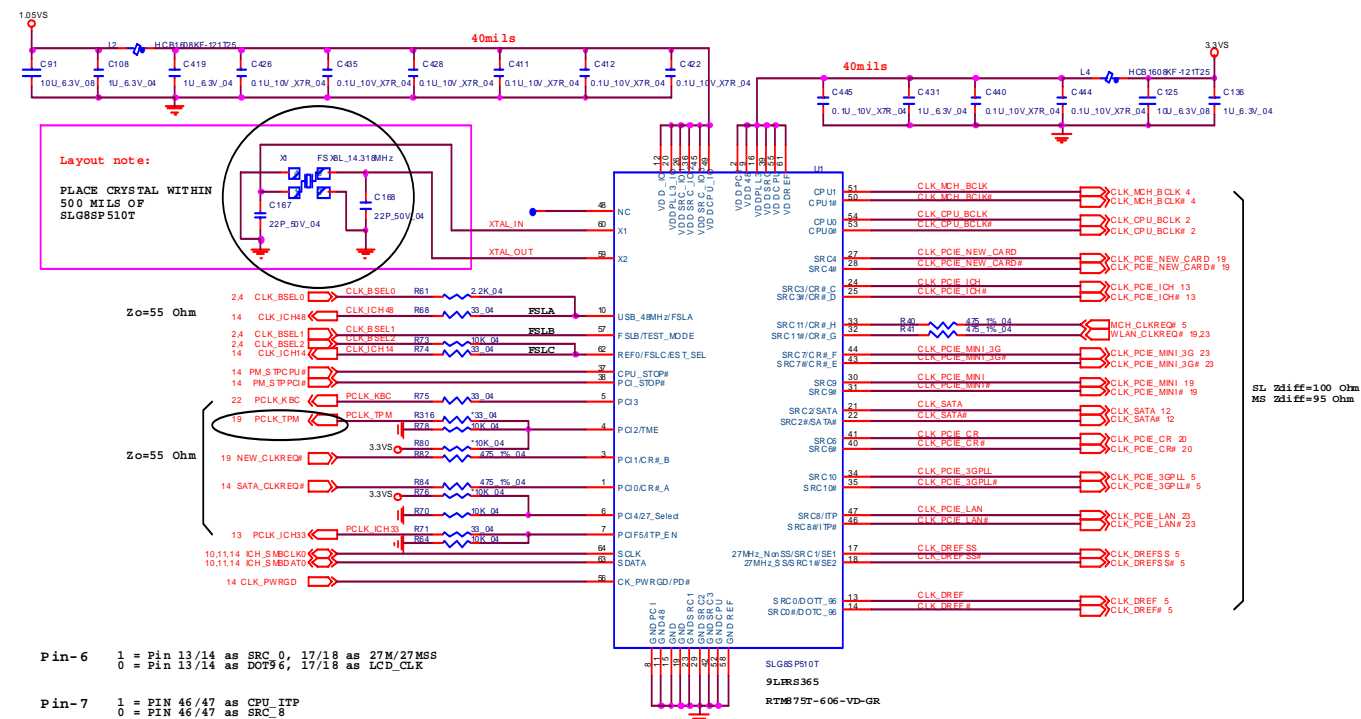


2,12,13,14,15,16,19,23,24,27,28 3.3V

Sheet 16 of 37  
ICH9-M 5/5, GND

## Clock Generator

## CLOCK GENERATOR



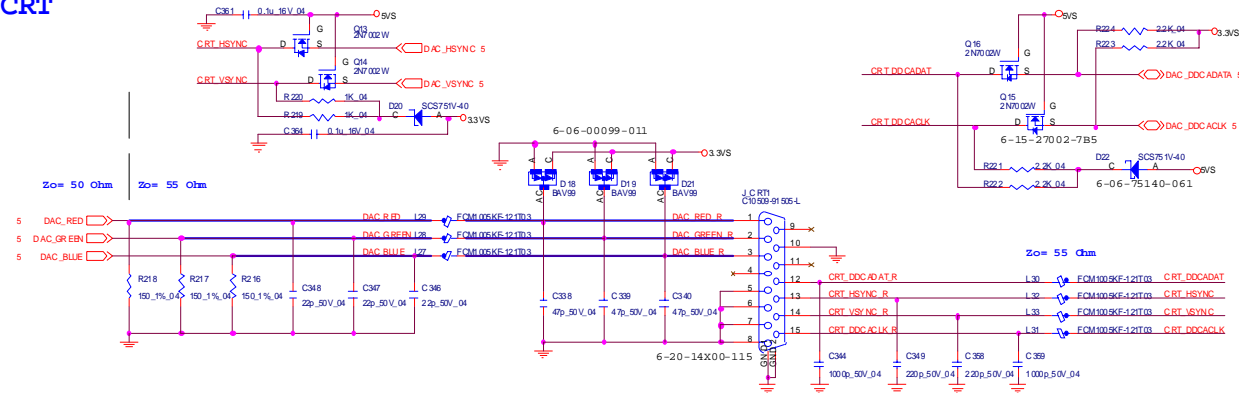
FSLC	FSLB	FSLA	CK505	
BSEL2	BSEL1	BSEL0	Host Clock Frequency	
0	0	0	266 MHz	1066 MHz
0	1	0	200 MHz	800 MHz
0	1	1	166 MHz	667 MHz

```
CR#_A(SATA_CLKREQ#) --> SRC2/2# --> CLK_SATA
CR#_B(NEW_CLKREQ#) --> SRC4/4# --> CLK_PCIE_NEW_CARD
CR#_H(MCH_CLKREQ#) --> SRC10/10# --> CLK_PCIE_3GPLL
CR#_G(WLAN_CLKREQ#) --> SRC9/9# --> CLK_PCIE_MINI
```

2,3,4,5,7,8,12,15,27 1.05VS  
5,8,9,10,11,12,13,14,15,18,19,20,21,22,23,24,25,29 3.3VS

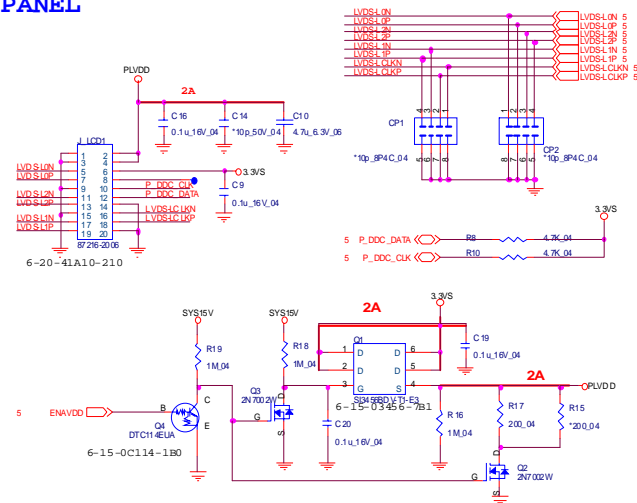
## Panel, Inverter, CRT, FTP, TP, CIR

## CRT

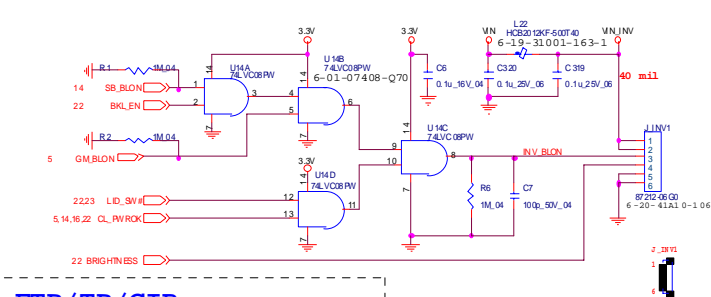


Sheet 18 of 37  
Panel Inverter,  
CRT, FTP, TP, CIR

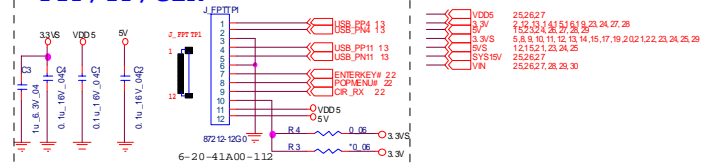
## PANEL



## INVERTER CONNECTOR



## FTP/TP/CIR

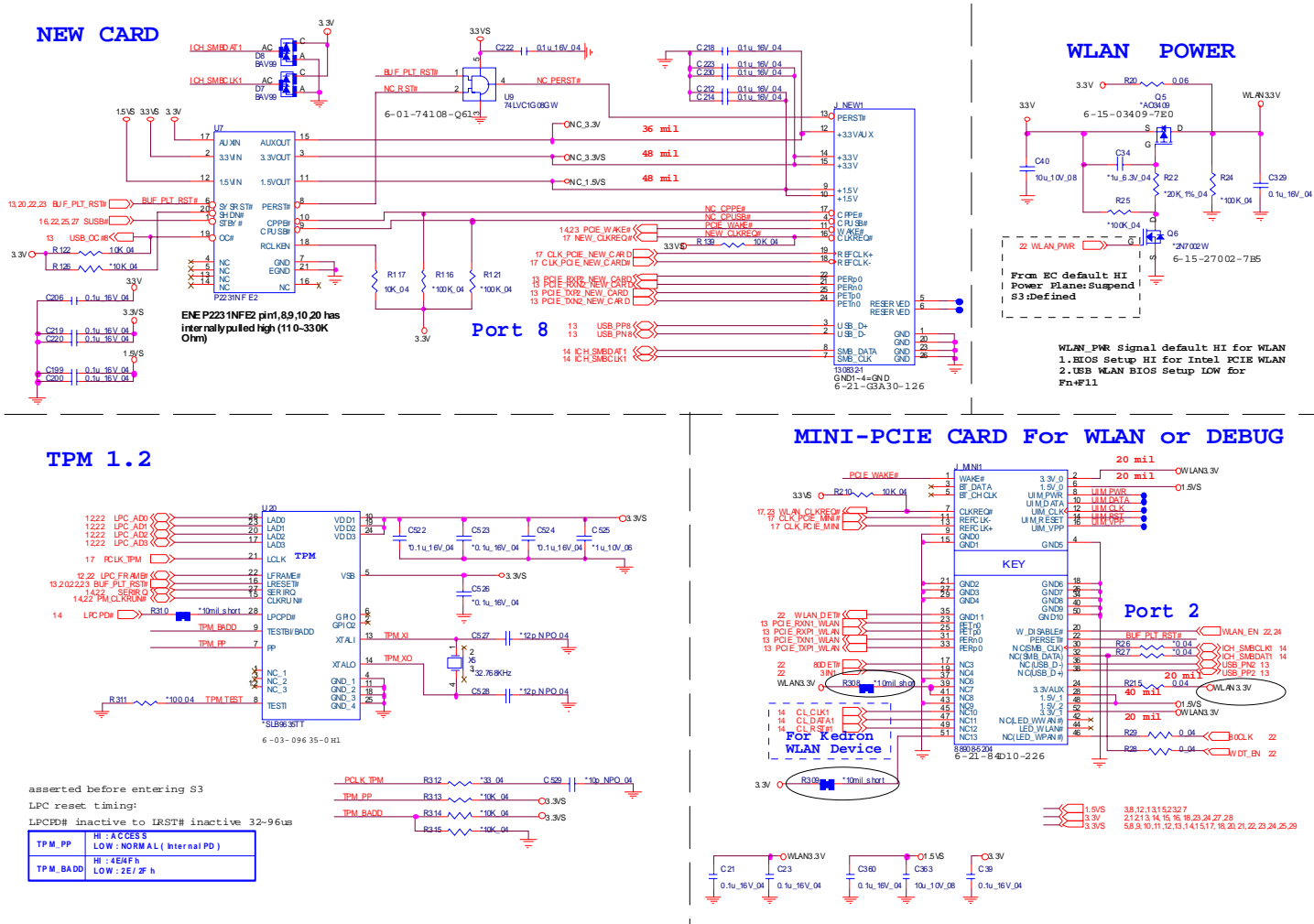




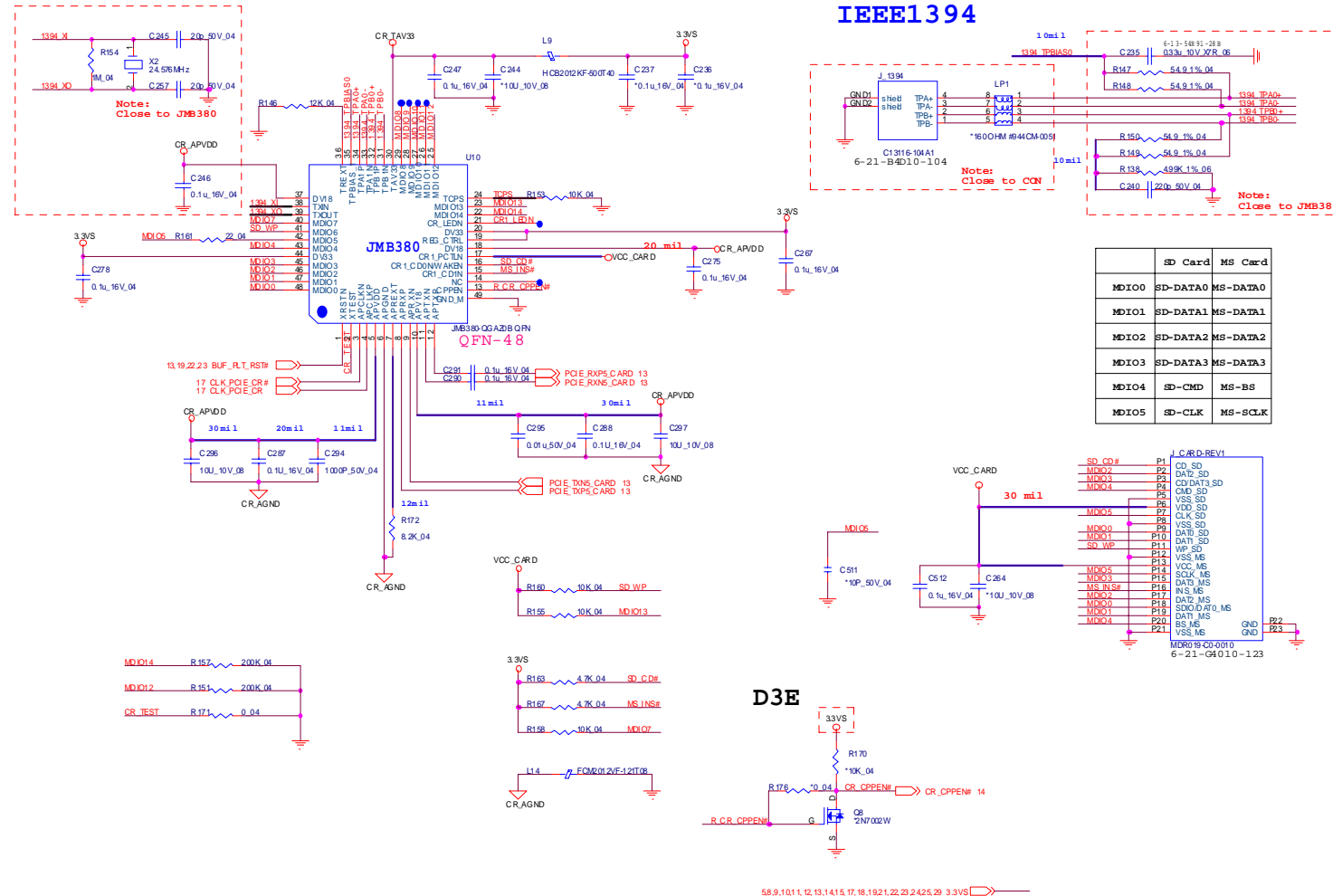
Schematic Diagrams

New Card, Mini PCIE, TPM

Sheet 19 of 37  
New Card,  
Mini PCIE, TPM



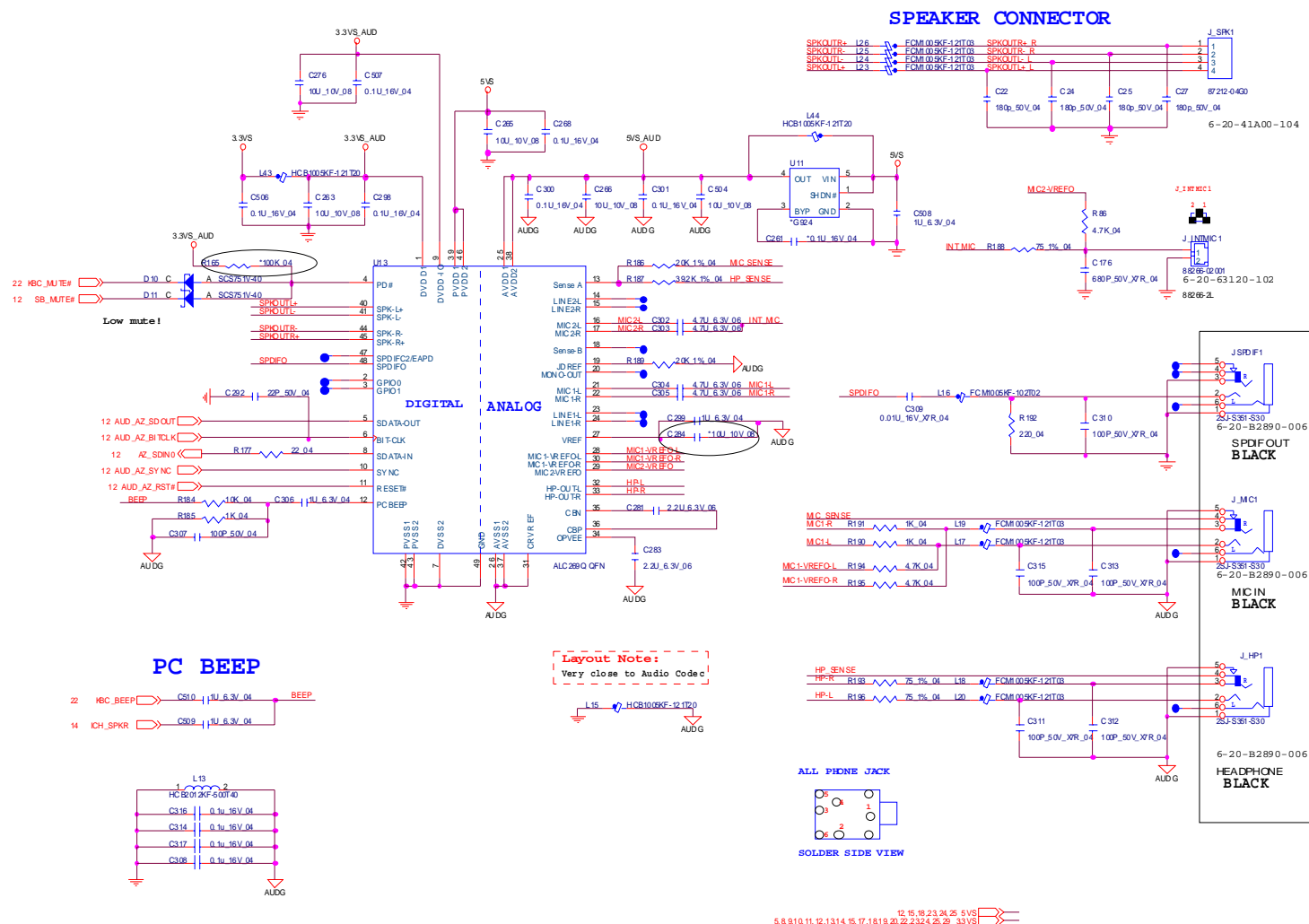
# ENE MR510, 7-in-1



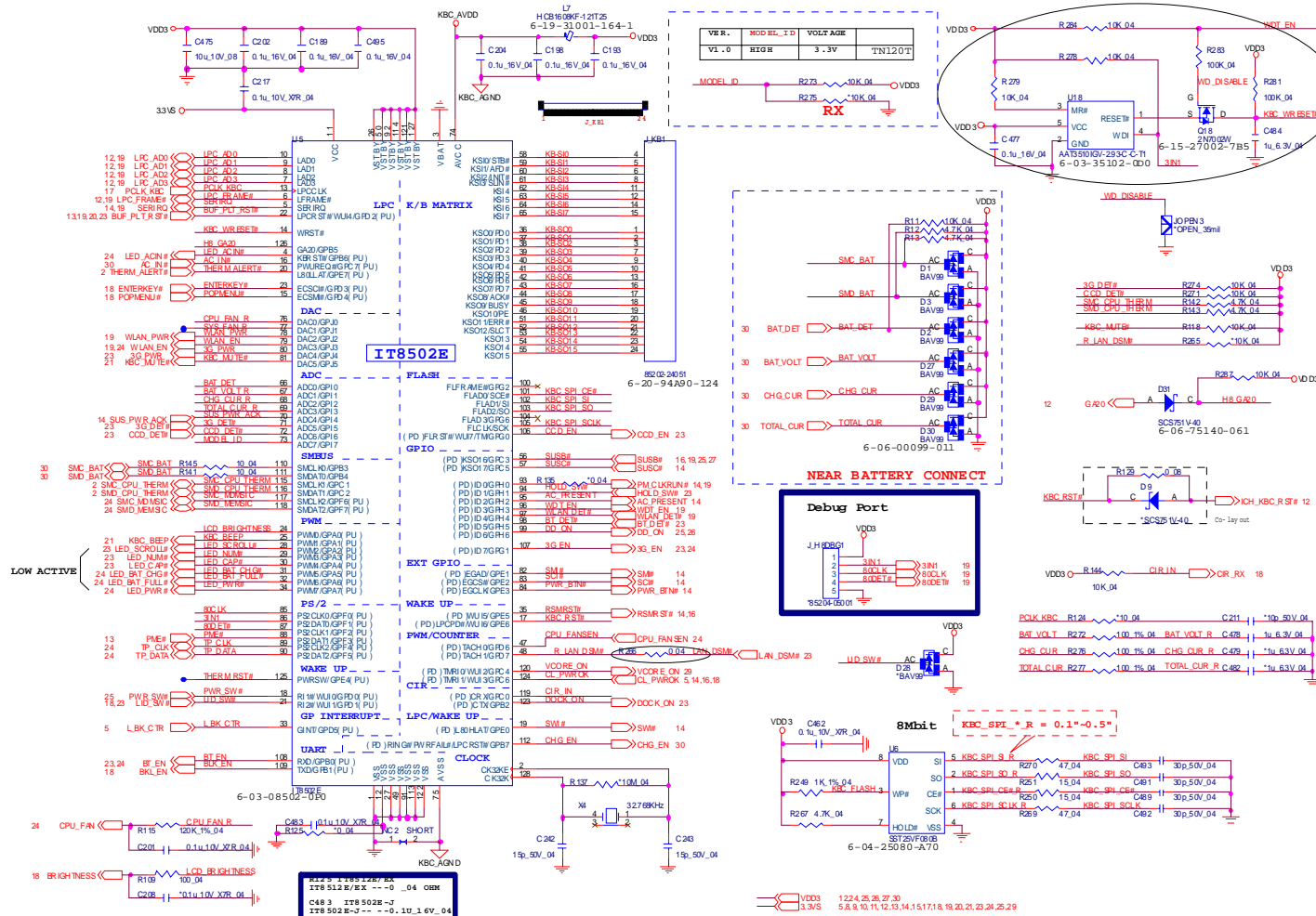
Sheet 20 of 37  
ENE MR510, 7-in-1

## B.Schematic Diagrams

Sheet 21 of 37  
Audio Codec  
ALC662



# KBC-ITE IT8502E



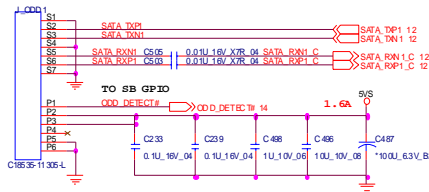
Sheet 22 of 37  
KBC-ITE IT8502E

Schematic Diagrams

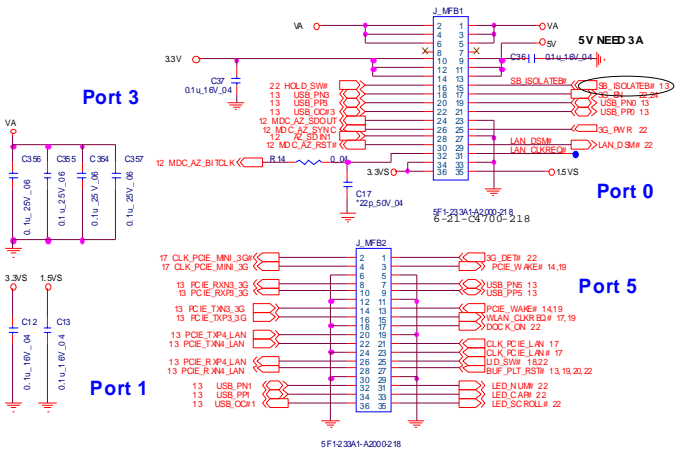
ODD, CCD, BT, Multi I/O

Sheet 23 of 37  
ODD, CCD, BT,  
Multi I/O

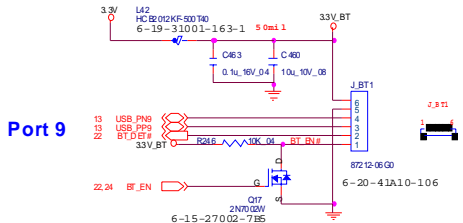
SATA ODD



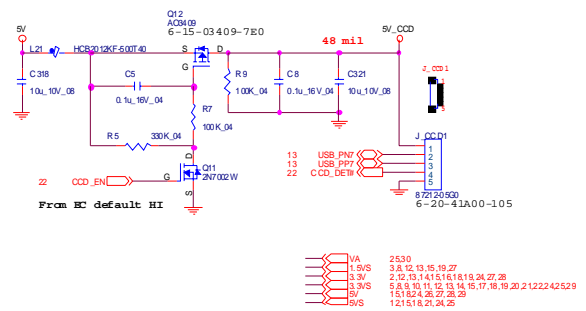
MULTI I/O CONN



Bluetooth

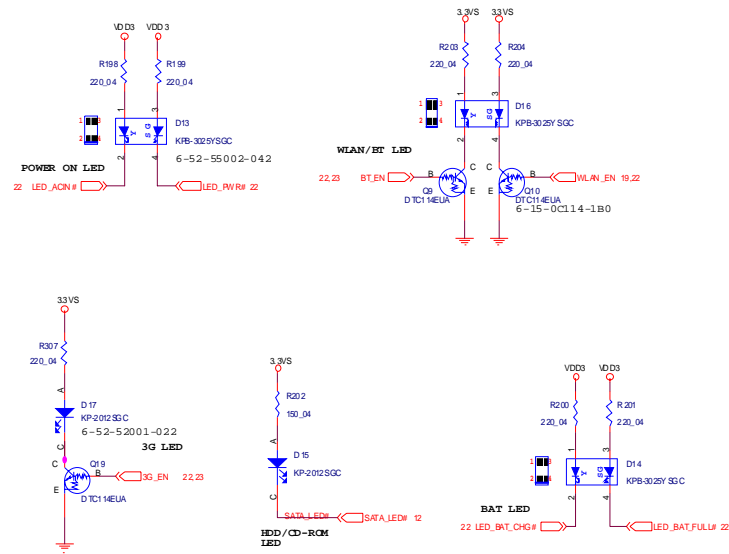


CCD

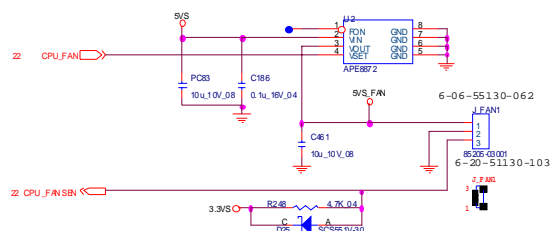


# LED, FAN, CLICK, LID, G-Sensor

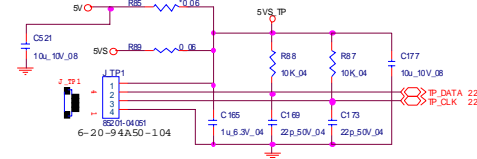
## LED



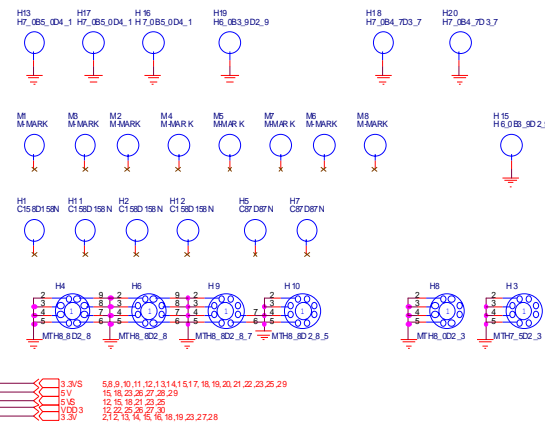
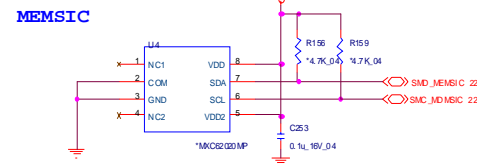
## FAN CONTROL



## CLICK CONN



## G-SENSOR



5VS, 3.3VS



VDD3 , VDD5



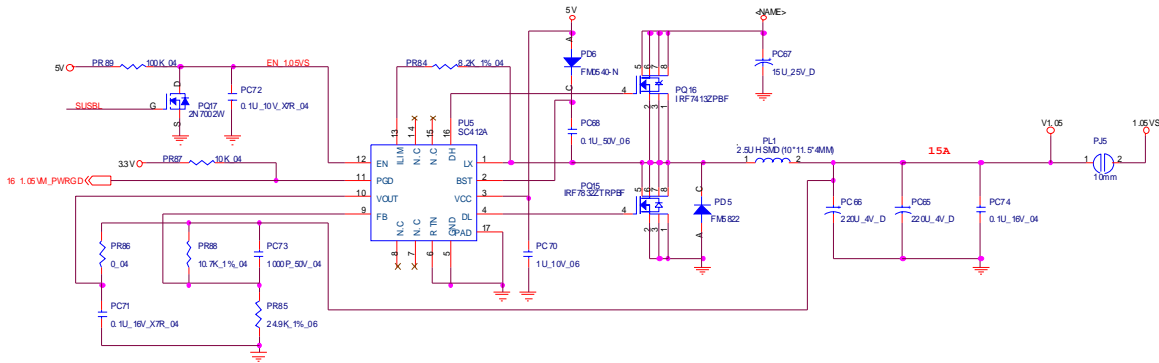
## B. Schematic Diagrams

Schematic Diagrams

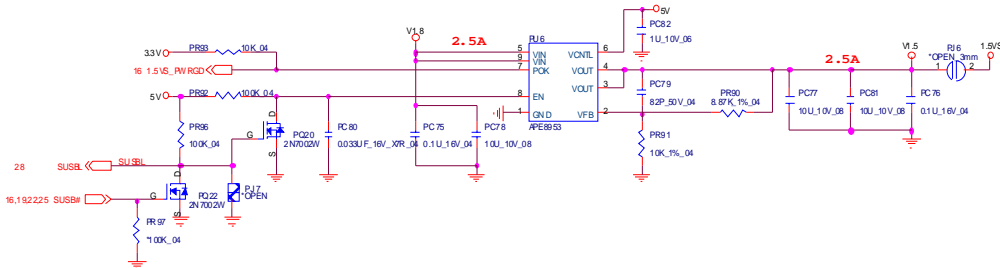
POWER 1.05VS/1.5V/3.3V/5V

Sheet 27 of 37  
POWER 1.05VS/  
1.5V/3.3V/5V

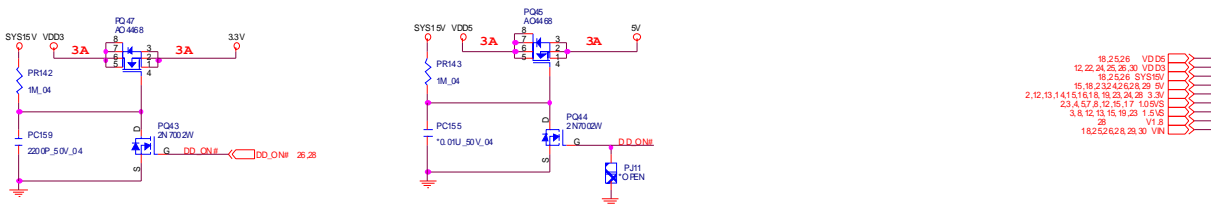
1.05VS



1.5V

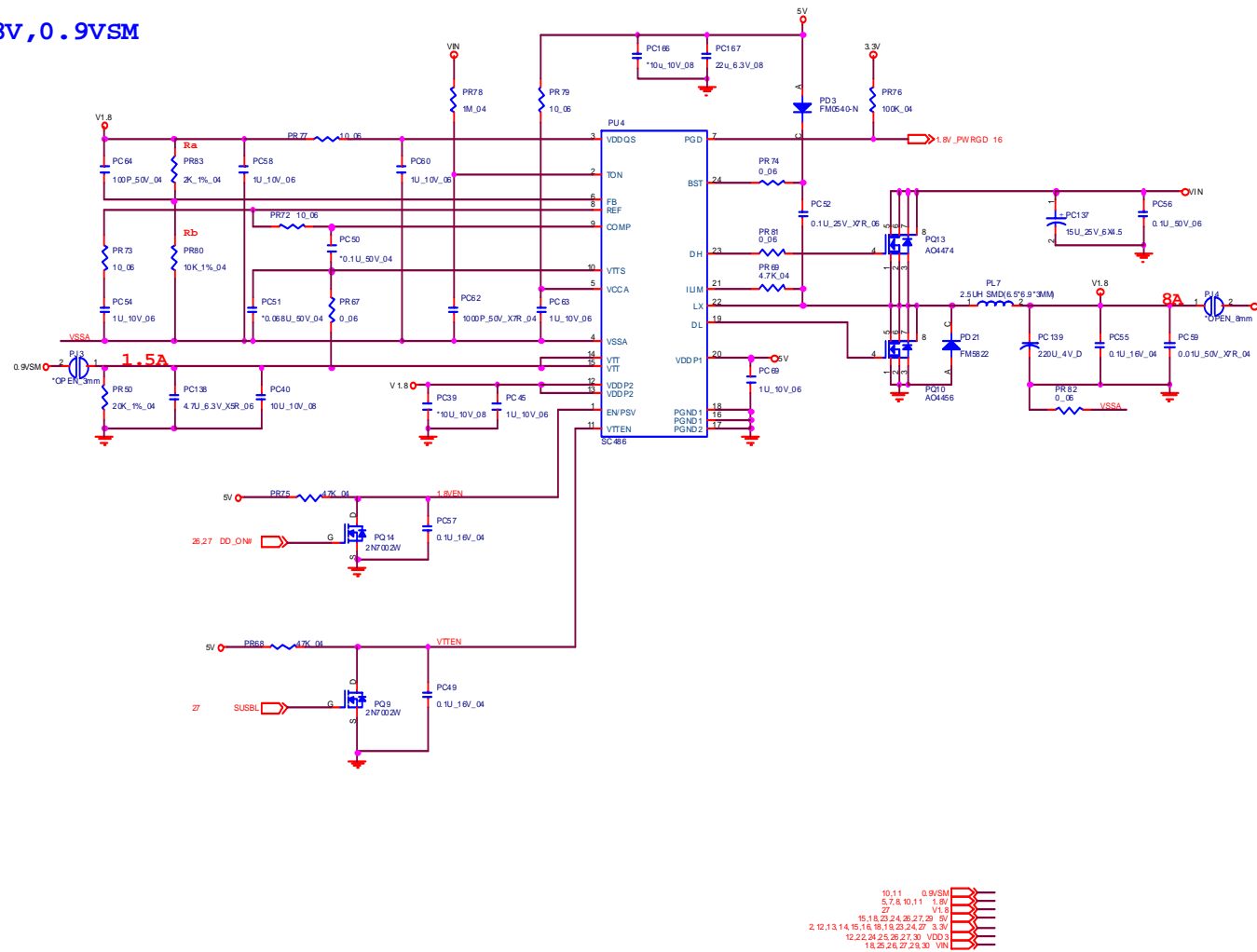


3.3V, 5V



# POWER 1.8V/0.9VSM

1.8V, 0.9VSM

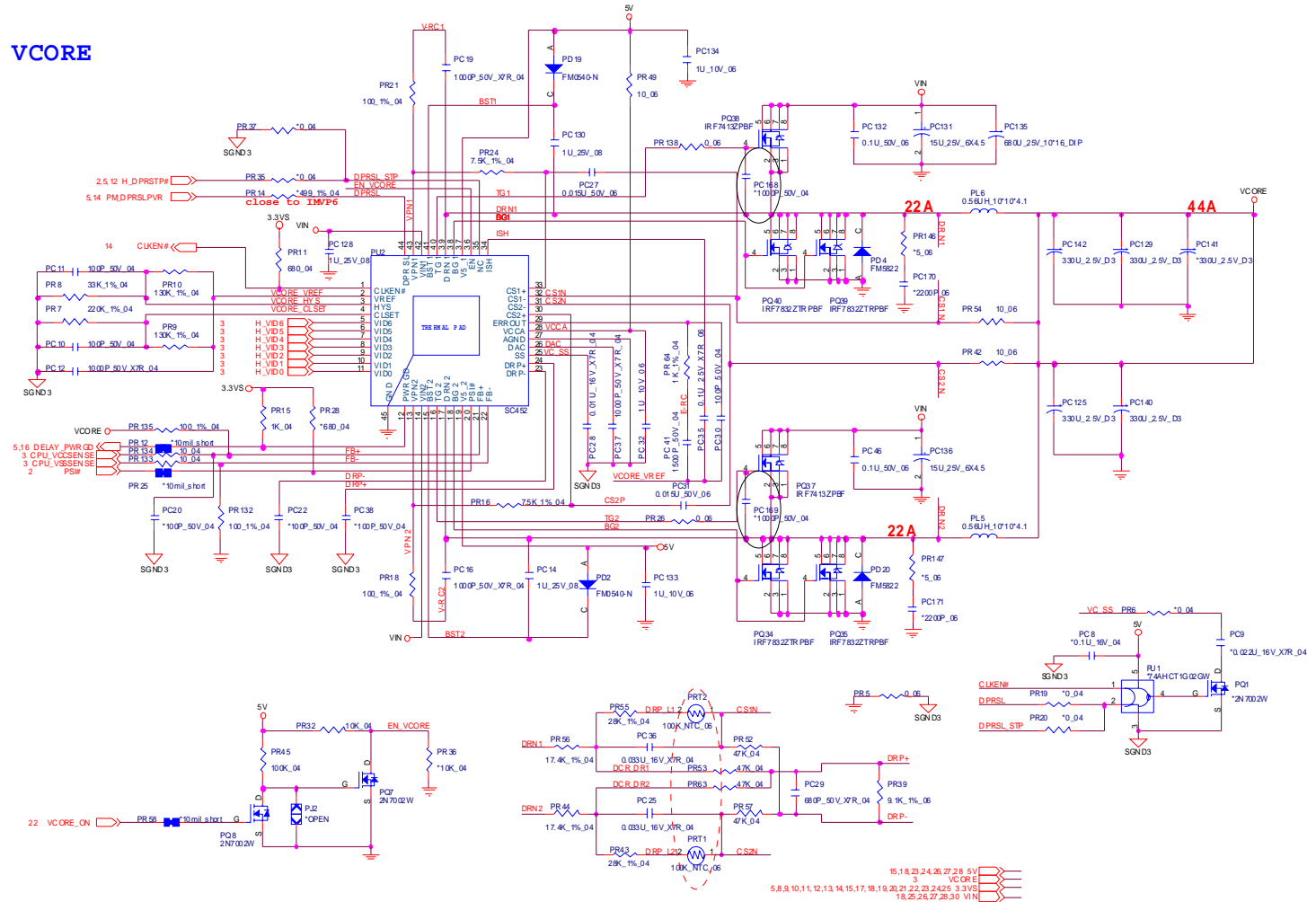


Sheet 28 of 37  
POWER 1.8V/  
0.9VSM

# CPU VCORE

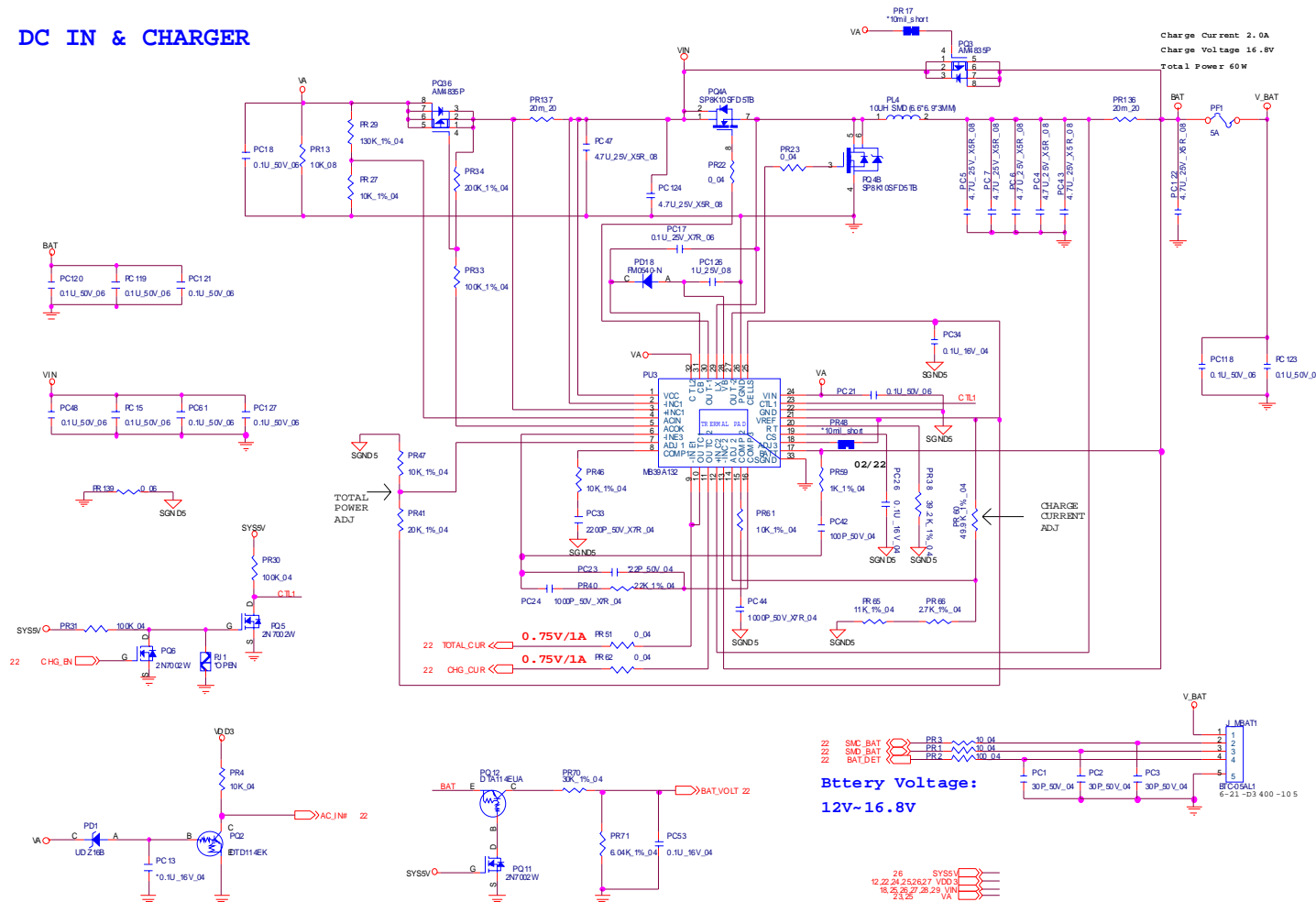
VCORE

Sheet 29 of 37  
CPU VCORE



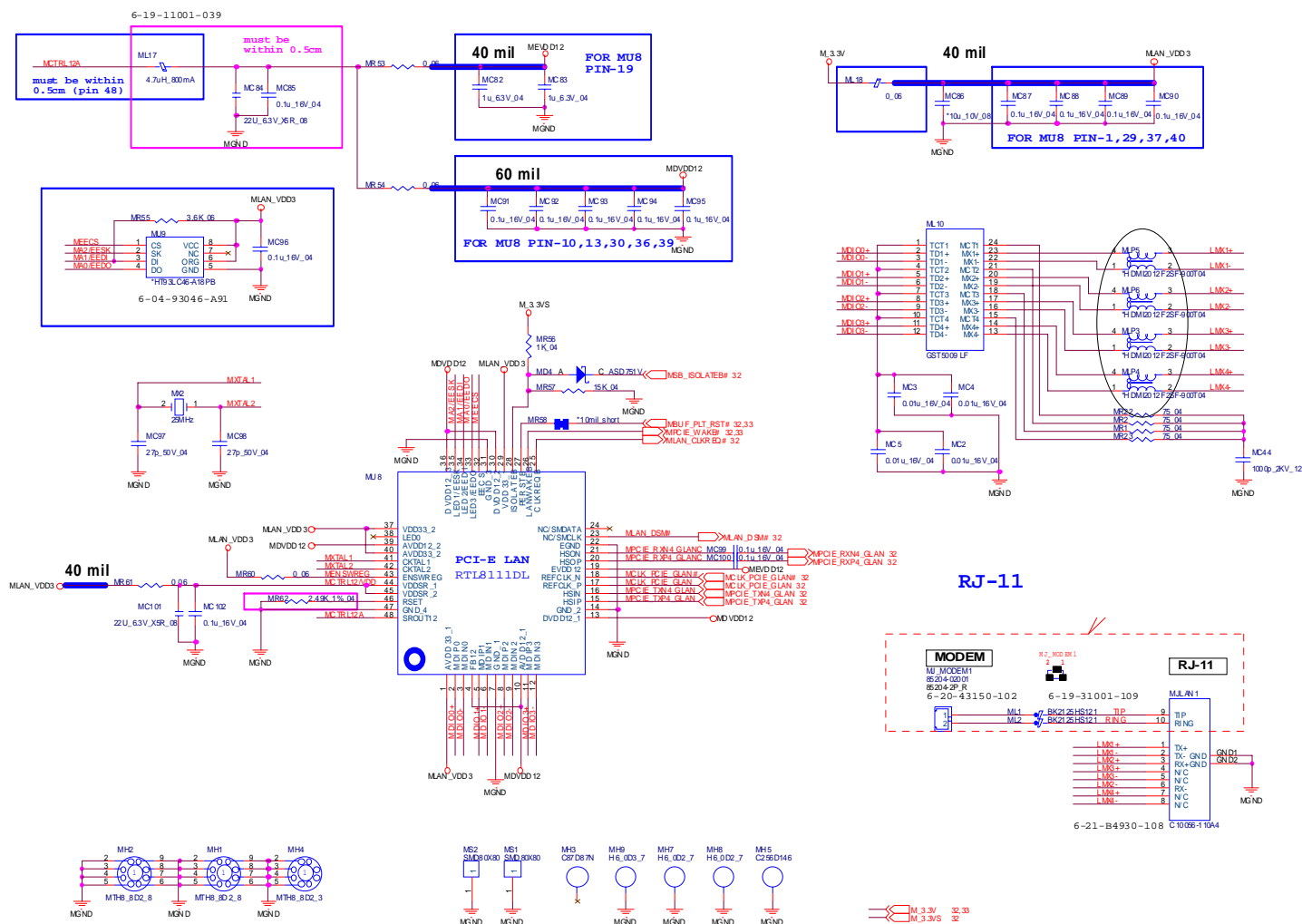
## DC-IN, CHARGER

## DC IN &amp; CHARGER

Sheet 30 of 37  
DC-IN, CHARGER

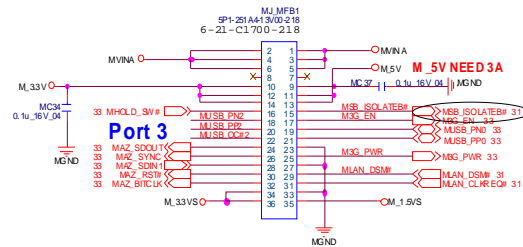
## B.Schematic Diagrams

Sheet 31 of 37  
Multi Board, PCIE  
LAN RTL8111DL

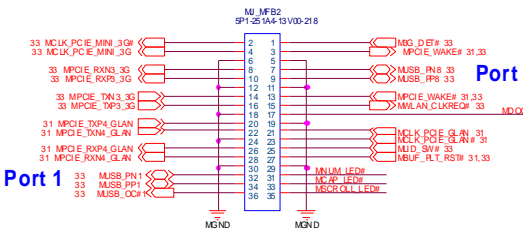


# Multi Board, LED, Docking, USB

Port 0

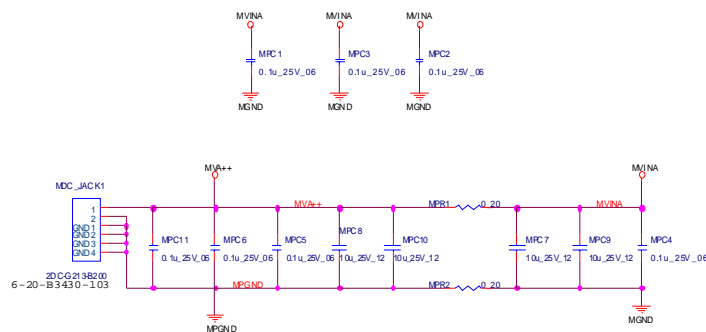


Port 0

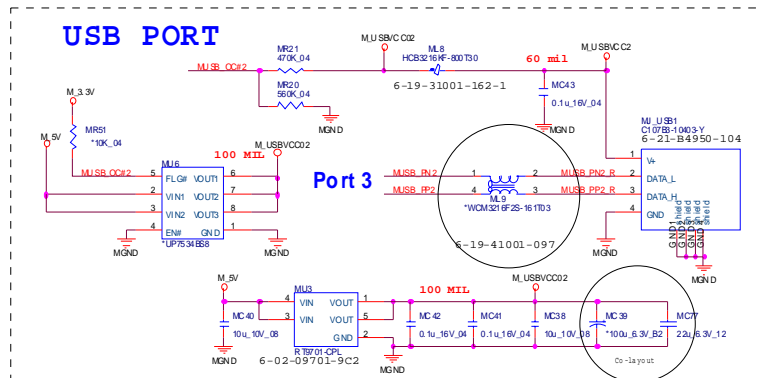


Port 5

Port 1

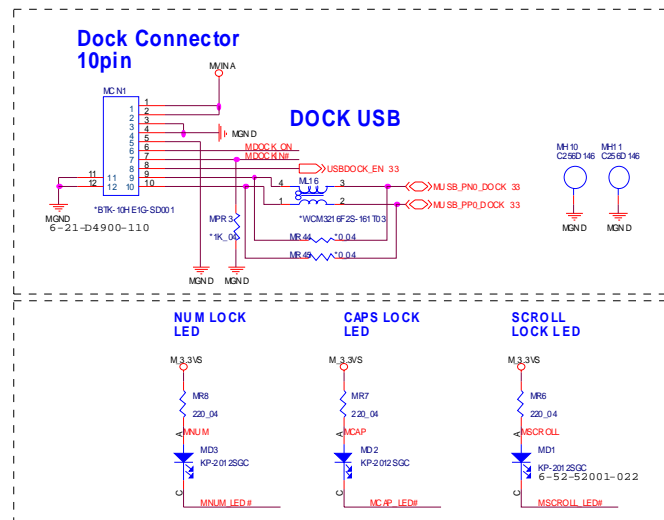


USB PORT

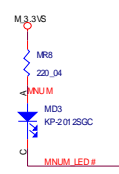


Port 3

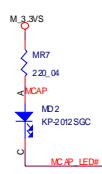
Dock Connector 10pin



NUM LOCK LED



CAPS LOCK LED



SCROLL LOCK LED

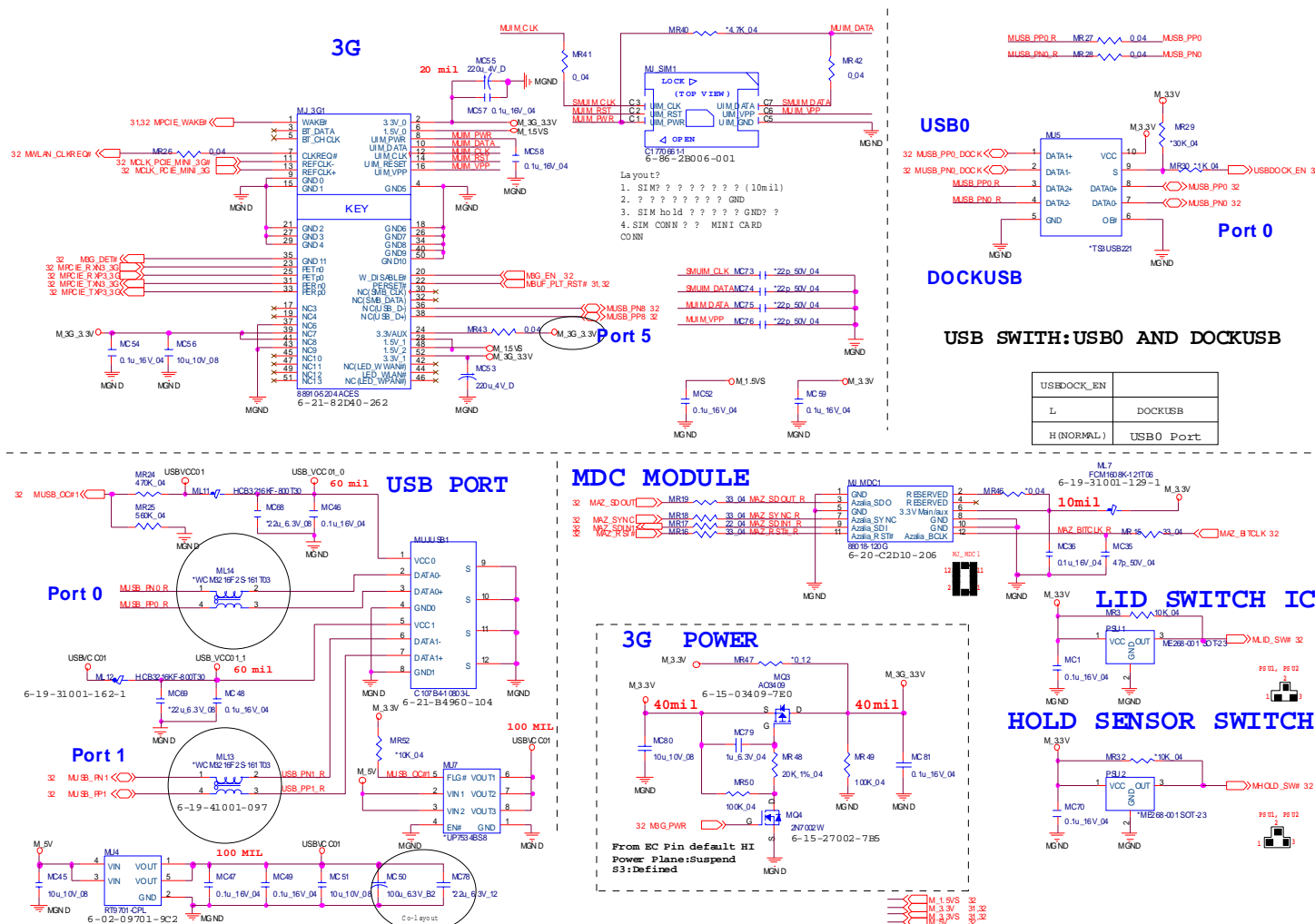


Sheet 32 of 37  
Multi Board, LED,  
Docking, USB



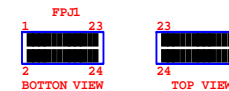
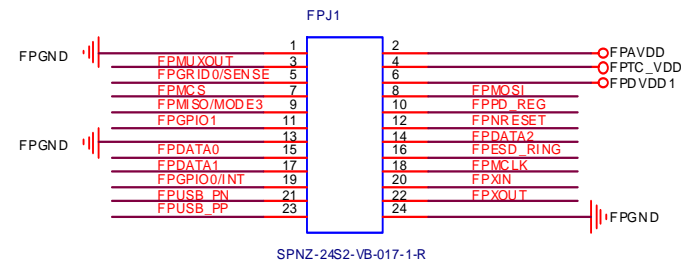
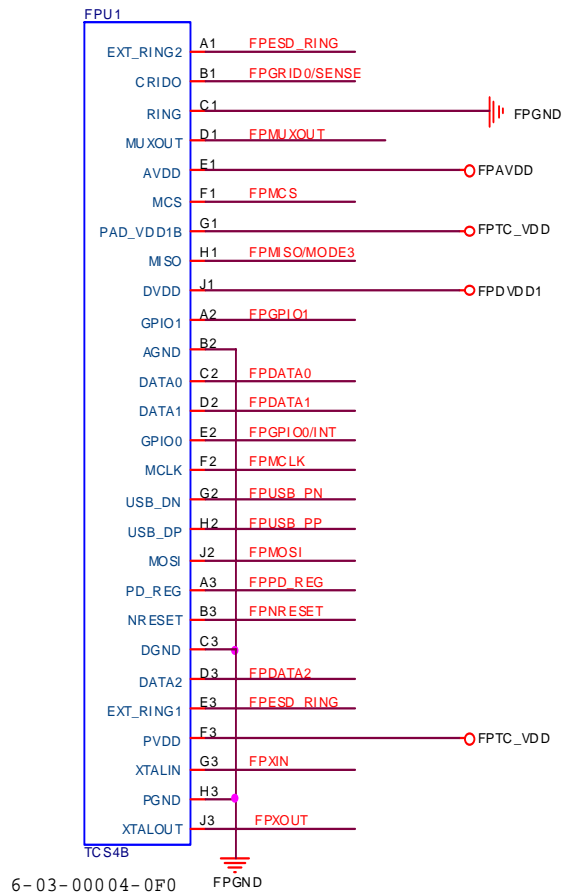
## B.Schematic Diagrams

**Sheet 33 of 37**  
**Multi Board, 3G,**  
**MDC, RJ11**



# FPT ExBoard FINGERPRINT

## FPT EXB'D FINGERPRINTER



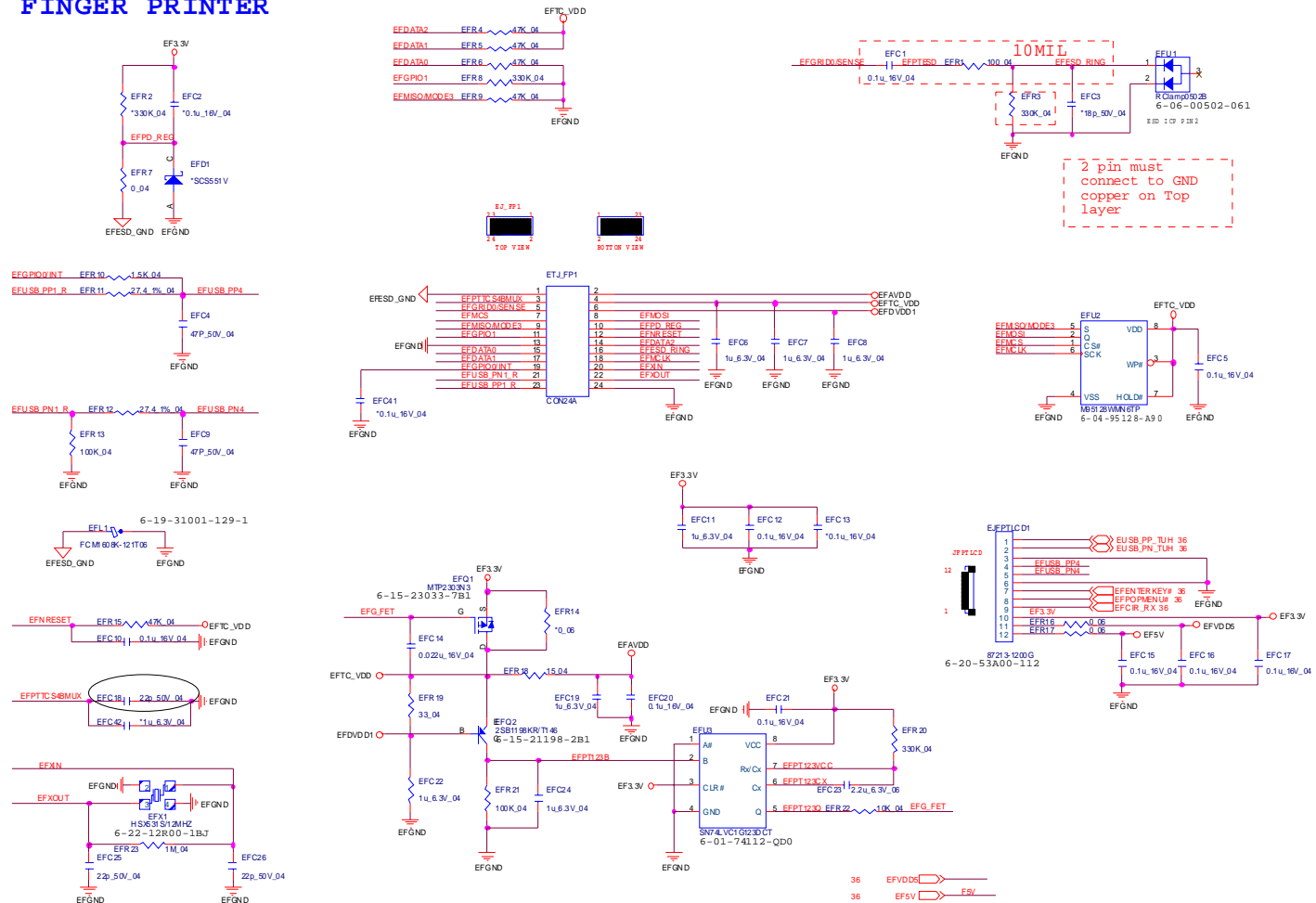
Sheet 34 of 37  
FPT ExBoard  
FINGERPRINT

## Schematic Diagrams

## FPT MBoard FINGERPRINT ET&amp;T

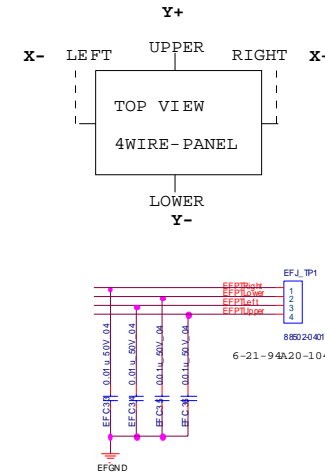
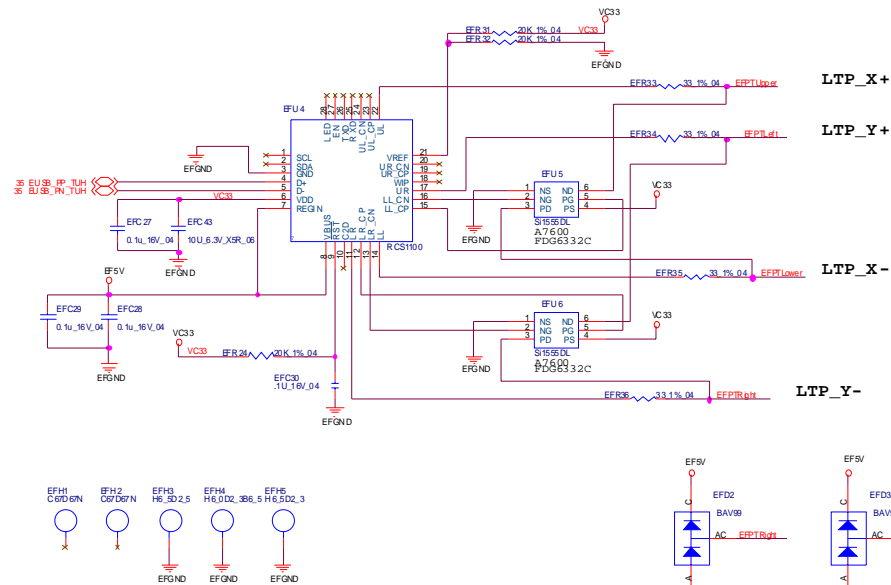
Sheet 35 of 37  
FPT MBoard  
FINGERPRINT  
ET&T

## FINGER PRINTER



# FPT MBoard TP, KEY, CIR ET&T

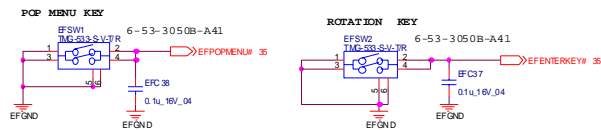
## TOUCH PANEL



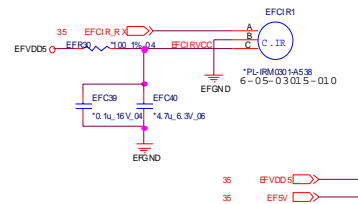
Sheet 36 of 37  
FPT MBoard TP,  
KEY, CIR ET&T

B.Schematic Diagrams

## MENU KEY



## CIR



Click Board

CLICK BOARD

Sheet 37 of 37  
Click Board

